Sundance Provincial Park
Vegetation Survey

prepared for:

Alberta Community Development
Parks and Protected Areas
Stony Plain Management Areas
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Preface

Consultants under contract to Alberta Community Development, Parks and Protected Areas prepared this report. Information contained in the report has not undergone review by professionals in the field of vegetation inventory and plant identification. The "*Sundance Provincial Park Vegetation Survey*" is a baseline inventory to be used as a starting point for the preparation of a management plan for the park. Any comments or suggestions contained in the report are the professional advice of the consultants and are not the policy of the Department of Community Development of the Alberta Government.

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1.0 Introduction

Sundance Provincial Park is a 3712 ha provincial park that was established in April 1999 by the Minister of Alberta Environment as part of the Special Places Program. A 500 m buffer, or special management zone was created around the park to act as a transition zone between the park and activities potentially occurring in the surrounding areas (Alberta Community Development 2001). This area is widely used by the public (hunters and trappers, hikers and other recreational users) and industry (forestry, oil and gas).

The purpose of this vegetation survey was to identify and describe all associated plant community types found within the Sundance Provincial Park and associated special management zone. As part of this process other features of unique, sensitive or disturbed nature were noted. These included, but were not limited to, new disturbance features (cutlines, well site roads, quad trails, and hiking/horse trails) significant wildlife habitat areas or migration corridors (including mineral licks and hibernacula), or areas of high biodiversity (old growth forests and highly diverse plant communities). The information collected as part of this vegetation survey not only provides a detailed assessment of the vegetation communities that occur in the region, but also identifies areas of high use, sensitive areas that may be in need of additional protection, or other significant features that may be of ecological, biological or cultural interest. This is a well-used provincial park with a number of unique and significant features that require management. The results of this vegetation survey could be used to establish a monitoring or assessment program though which effective management of the park can be continued for the benefit of all interested parties.

2.0 Study Area Location

Sundance Provincial Park is located west of Edson and north of Highway 16. This park is comprised of the Emerson Lakes area located just east of the Athabasca River on the Emerson Creek Road, approximately 70 km northwest of Edson, and the Sundance Creek valley, which runs north-south from the Emerson Creek Road to Highway 16 (approximately 25 km west of Edson). Figure 1 shows the location of Sundance Provincial Park and the associated special management zone. Much of the area, including Emerson Lakes and the Sundance Creek valley, is located predominantly in the Lower Foothills Subregion of the Foothills Natural Region. A small corner in the extreme northern portion of the Sundance valley, as well as the plateau adjacent to the valley, is located within the Upper Foothills Subregion.

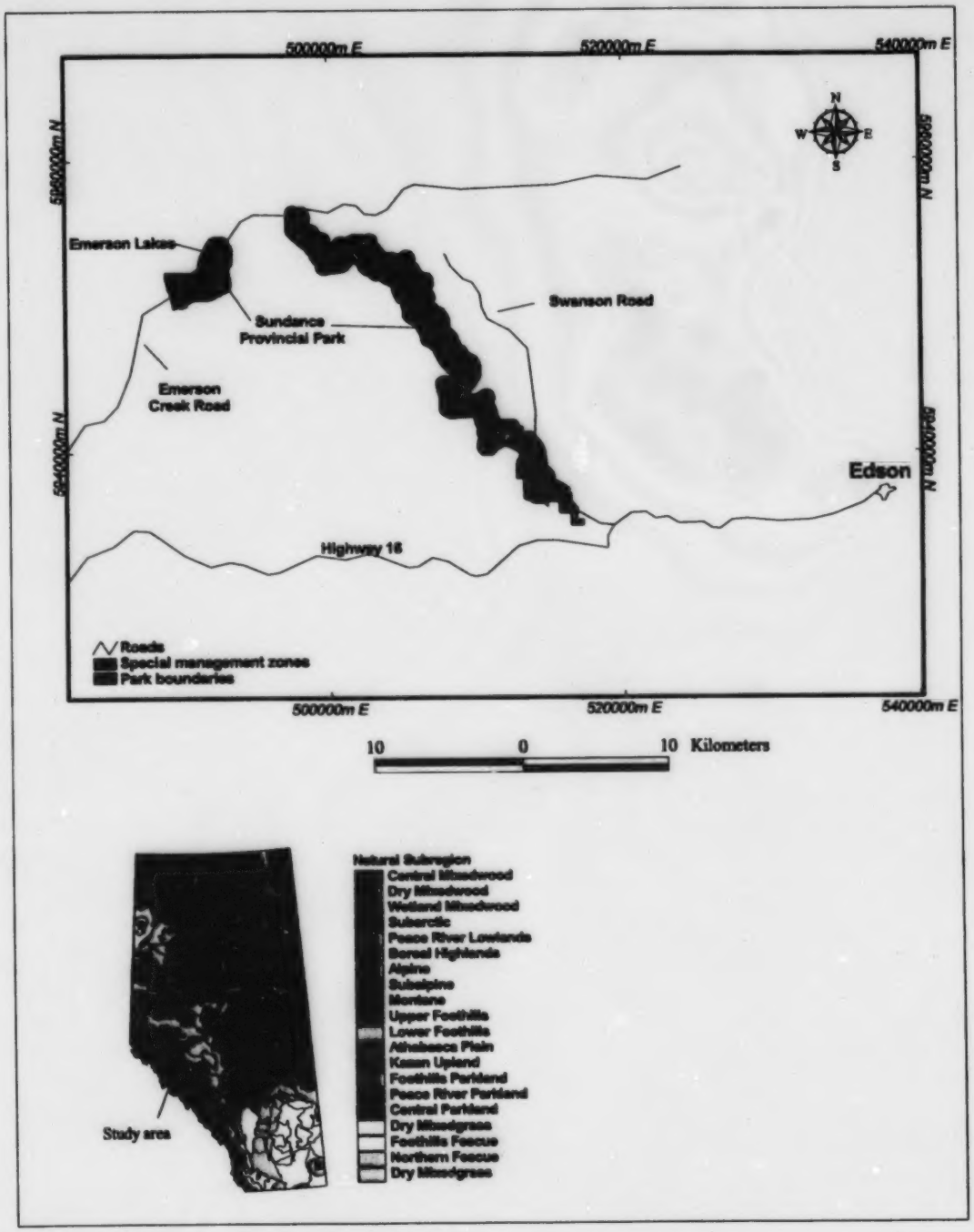


Figure 1. Location of Sundance Provincial Park.

3.0 Study Area Description

Geomorphology, Landform and Hydrology

Sundance Provincial Park is comprised of many unusual landform features that are unique to this area. Many of these landforms have been created as a result of the actions of past glaciation and de-glaciation events that have helped shape the land into its current state. The two areas of Sundance Provincial Park, Emerson Lakes and the Sundance Creek valley, are characterized by distinctively different landforms and geomorphology.

Dried lakebed of one of the five lakes in the Emerson Lakes area.

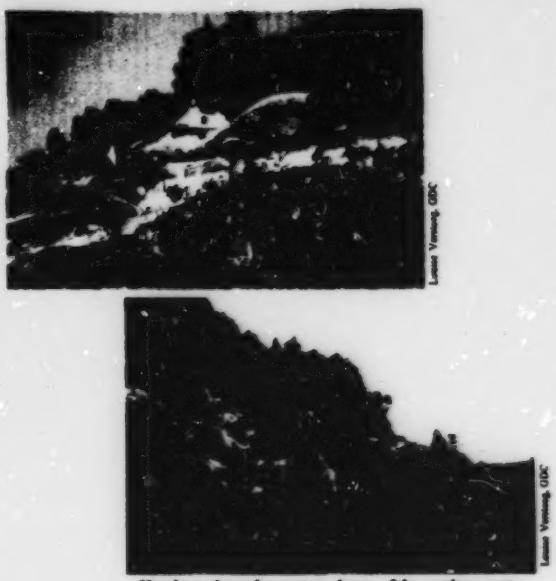
In the Emerson Lakes area, much of the region is characterized by drumlin and fluted moraine till deposits, as well as glaciofluvial outwash plains. There are also moderate inclusions of glaciolacustrine, and organic deposits in low lying areas (Nelson *et al.* 1988). This is a deeply eroded landscape of eskers, lakes and streams. One of the most prominent features of the area are the lakes for which Emerson Lakes Recreation Area has been named. Emerson Lakes is the largest of these lakes, which are situated in the lowlands between a series of eskers that traverse across the landscape. There are also a number of smaller streams and creeks associated with this area, including the Athabasca River valley, which abuts the eastern boundary of the park.

In contrast, the Sundance Creek valley is a deeply incised valley comprised of glaciofluvial deposits from the meltwaters of a receding glacier (Alberta Community Development 2001), while the plateau above the valley is dominated by moraine till deposits (Nelson *et al.* 1988). Sundance Creek itself is a small stream winding its way through the valley bottom that drains Beaver, Little Sundance and Sundance Lakes. These are the main hydrological components associated with this valley. The Sundance valley stretches more than 36 km north-south (Elly Marshall pers. comm. 2001) and encompasses an array of different landform features. There are distinct differences in geomorphology and landform, both north-south and east-west.

View of Beaver Lake and glacialfluvial terracing along the western slopes of the Sundance Creek Valley

Northern areas of the valley are characterized by long,

steep slopes (70-80%) extending 100-500 m, or longer, to the valley floor. These slopes are predominately of glaciofluvial origin, with localized fluvial activity, minor slumpage and erosion occurring along the slope face. In the plateaus above the valley, level to rolling moraines are common, with isolated occurrences of organic materials in low-level depressions (Nelson *et al.* 1988). The valley bottom represents a glaciofluvial outwash channel that has been modified by active fluvial and lacustrine processes. Southern portions of the valley are generally characterized by undulating expanses of moraine till or glaciofluvial uplands (Bentz *et al.* 1986) that emerge onto short (30-100 m) steep (70-80%) slopes down to the valley bottom. The valley bottom is dominated by organic and fluvial materials that have been deposited over the remnants of a glaciofluvial outwash channel (Bentz *et al.* 1986).



Hoodoos along the eastern slopes of the northern part of the valley in Sundance Provincial Park.

Freshwater springs along the western valley slopes in the northern part of Sundance Provincial Park.

Along the west facing slopes of the northern portion of the Sundance valley are unique sandstone cliffs and sculptures—the Sundance Hoodoos. These hoodoos have been formed by wind and water that erodes away the softer sand and siltstone layers leaving behind the more resistant bedrock, as a caprock, thus forming the unique geological formations seen today. Exposed bedrock outcrops that may one day become hoodoos are also present on the east facing slopes of this valley. The east facing slopes of the northern portion of the Sundance valley are much longer (greater than 500 m) than the west facing ones. These slopes exhibit patterns of glaciofluvial terracing and, as a result, do not have such an extreme slope, though they are still steep (30-60%). Along these slopes fresh water springs are common, forming cascading waterfalls as they tumble down the hillside to Sundance Creek. Many of these springs, including the one located in the southern part of the valley near the Marl Bog emerge directly from underground springs.

Soils

The soils associated with Emerson lakes component of Sundance Provincial Park are primarily comprised of moraine till or glaciofluvial outwash. They are typically Orthic Gray Luvisols or Brunisolic Gray Luvisols, with some Eluviated Eutric Brunisols (Nelson *et al.* 1988). Organic deposits make up a minor component of the soils in this area and are typically mesisols. In the

northern portion of the Sundance valley, slopes are characterized by regosolic and luvisolic soils, while the valley bottom is comprised of regosols, gleysols and isolated pockets of organic mesisols. Soils of the plateau adjacent to the valley are primarily Brunisolic Gray Luvisols and Orthic Gray Luvisols (Nelson *et al.* 1988). The southern part of the Sundance valley contains a diverse array of soil types. Organic mesisolic fens are common throughout the valley bottom and the adjacent plateau, while Brunisolic Gray Luvisols are common along the valley walls. Luvisolic and brunisolic soils are also characteristic of the upland moraine plateau, though there are inclusions of extensive organic deposits typified by mesisolic or gleysolic soils (Bentz *et al.* 1986).

Climate

Sundance Provincial Park lies almost entirely within the Lower Foothills Subregion, with only portions of the buffer zone along the plateau above the valley and the extreme northern quadrant of the Sundance valley extending into the Upper Foothills Subregion (Figure 1). Given the transitional nature of the Lower and Upper Foothills boundaries, it is likely that much of the Sundance Creek valley is typified by climatic conditions more characteristic of the Lower Foothills. Sundance Provincial Park (including the special management zone) is characterized by a continental climatic regime, with a wide variance between summer and winter temperatures. Winters can be somewhat mild, as this subregion often escapes the severe cold of Arctic air masses, while summers are generally cool (Achuff 1994). Nearly two-thirds of the precipitation in the Lower Foothills occurs during the summer months (May to September), making this subregion have one of the lowest evapotranspiration deficits, in Alberta, during the growing season (Achuff 1994).

Vegetation

Sundance Provincial Park encompasses a diverse array of vegetation communities, from mixedwood forests and old growth white spruce, to bogs and rich fens. The Emerson lakes area is predominately comprised of aspen and white spruce mixedwoods, with pure lodgepole pine and lodgepole pine mixedwood stands occurring along the eskers surrounding the lakes and in areas to the northwest of the lakes. Localized pockets of black spruce along streams and in bogs and fens are also present in this area.

The Sundance Creek valley on the other hand, has very distinctive vegetation zones east-west as well as north-south. The steep, eastern slopes of the valley are dominated by pure aspen forests, with aspen-white spruce mixedwood stands occurring along the lower slopes of the valley. Western slopes are characterized by mixedwood forests, including white spruce-balsam fir mixedwood stands, some of which are considered old growth forest. Aspen and white spruce mixedwood stands are also common along the

Graminiod and shrubby fens along the perimeter of Sundance Creek in the southern part of Sundance Provincial Park.

upland plateaus adjacent to the valley and may be mixed with lodgepole pine. The valley bottom in the northern part is primarily comprised of shrubby and herbaceous meadows with isolated areas with fens and bogs dominated by black spruce and larch. Balsam poplar and white spruce-horsetail stands may occur alongside the creek or lakes.

The valley bottom to the south is much wetter, characterized by an abundance of rich and poor fens, with isolated pockets of bogs. Larch and black spruce are the dominated species in these areas, with white spruce and white spruce mixedwood stands occurring along some portions of the Sundance creek. White spruce, aspen and lodgepole pine mixedwood stands are found throughout the upland plateaus, with lodgepole pine dominating along the short, steep slopes that characterize the valley walls in this area. On north facing slopes, there are isolated stands of dense lodgepole pine and black spruce.

Wildlife

A wide variety of wildlife species reside in, or frequent areas of, Sundance Provincial Park. There is an abundance of white tail and mule deer, as well as elk and moose that frequent the valley for forage and shelter. Black bears are known to occur in the area and there is at least one report of a resident grizzly bear in the valley. Other carnivores that may use the valley include wolves, coyotes and, potentially, cougars (Elly Marshall pers. comm. 2001). Smaller mammals such as snowshoe hare, red squirrel, mice and voles are year round residents of the park. There is also an abundant population of beavers that can be found in any of the lakes in the Emerson Lakes area, as well as the Sundance Creek valley. The park is also home to a diverse array of bird and waterfowl species that are common to the foothills of Alberta.

The waterways of Sundance Provincial Park contain a number of indigenous fish species including the bull trout, which is a species of special concern. Other native fish species that inhabit the park include mountain whitefish, arctic grayling, northern pike and burbot (Alberta Community Development 2001). Several other species including rainbow, brown and brook trout have been introduced through stocking programs to selected lakes in the park to enhance recreational fishing opportunities (Alberta Community Development 2001).

4.0 Field Survey Methods

The vegetation survey for Sundance Provincial Park was completed in August of 2001 and involved establishing 25 detailed and 25 reconnaissance plots throughout the park area, both within the provincial park and the surrounding special management zone. Plots in the special management zone were restricted to reconnaissance level only, while both detailed and reconnaissance plots were established within the park boundaries. For the purposes of this study Sundance Provincial Park was delineated into three areas:

- Emerson Lakes (Twp 54-55, Rng 21-22)
- Sundance Creek North (Twp 54-55, Rng 20-21)
- Sundance Creek South (Twp 53, Rng 19-20)

Preliminary Stratification

Prior to commencing the field survey, a preliminary stratification of the area to ecosite phase (Beckingham *et al.* 1996) was conducted through aerial photography interpretation. Ecosites represent ecological units that reflect similarities in ecological conditions (climate, moisture and

nutrient regimes), while ecosite phases capture the dominant tree species that occur under those conditions (Beckingham *et al.* 1996).

Alberta Sustainable Resource Development supplied 1:15,000 and 1:20,000 aerial photographs covering the Sundance Creek valley and Emerson Lakes area, respectively. Aerial photographs used in the interpretation and preliminary stratification for included:

- Line 7, numbers 212-215 and Line 8, numbers 219-222 for the Emerson lakes area
- Lines 9-12 for the southern part of the Sundance Creek valley
- Lines 3-6 for the northern part of the Sundance Creek valley

Sites were selected to encounter the broadest range of ecosite phases across the entire area, as well as any unique landforms or other significant features that may be encountered on the ground. As a preliminary ecosite phase map had already been developed for the northern portion of the Sundance Creek valley, plots were reallocated accordingly to sample remaining areas of the park with a somewhat greater intensity. Thus, detailed and reconnaissance plots were allocated to the three areas of Sundance Provincial Park (Emerson Lakes, Sundance Creek North and Sundance Creek South) as follows:

- Emerson Lakes (16 plots) – 8 detailed and 8 reconnaissance plots
- Sundance Creek North (15 plots) – 7 detailed and 8 reconnaissance plots
- Sundance Creek South (19 plots) –10 detailed and 9 reconnaissance plots

Accessibility was also a determining factor in locating plots, as some areas were too wet to travel through. In addition, high water levels in the creek made it impossible to cross the valley, so access into the valley was restricted to either the eastern or western perimeters. Thus, at times it was necessary to readjust the initial sampling locations to deal with access issues.

Field Data Collection

The data collection protocol used for this vegetation survey followed the guidelines outlined in the *Ecological Land Survey Site Description Manual* (Alberta Environmental Protection 1994). All field plots (detailed and reconnaissance) were marked at the center with flagging tape denoting the plot number, data and surveyor initials. Plot location was recorded at plot center with a GPS unit and one photograph of a representative area of the site was taken. Detailed level plots involved a complete survey of site and vegetation characteristics, as well as a brief inspection of the soil conditions. A detailed vegetation inventory was conducted within a 10 x 10 m area representative of the site. All vegetation species, including mosses and lichens were identified to species and their associated percent cover recorded to the nearest percent. If a plant could not be identified in the field it was collected and pressed for later identification by a plant taxonomist. A small soil pit 30–40 cm deep was also established and general soil conditions described. Reconnaissance plots involved the collection of detailed site and vegetation information following the same protocols as used for detailed plot data collection, but no soils data. Table 1 summarizes the data that was collected as part of this vegetation inventory.

During the data collection component a number of other significant features were also noted. These included unique or sensitive landform features, historical features, wildlife sightings, areas of high biodiversity or significant wildlife habitat and any disturbance features (new cutlines, pipelines, quad trails, *etc.*). Additional photographs were taken of these sites to document these features.

Table 1. Summary of the data collected for the Sundance Provincial Park vegetation inventory.

Site Data*	-	plot number
	-	date
	-	photo numbers
	-	natural subregion
	-	ecosite, ecosite phase and community type
	-	site exposure
	-	flood hazard
	-	soil drainage
	-	soil perviousness
	-	site position, microtopography and shape
	-	moisture regime
	-	nutrient regime
	-	successional status
	-	disturbance factors
	-	% cover of surface substrates (decaying wood, bedrock, cobbles and stones, mineral soil, organic matter, water)
	-	aspect
	-	slope
	-	site comments
	-	landscape profile diagram
Vegetation Data*	-	plot number
	-	date
	-	plant species
	-	percent cover
	-	density distribution
Soils Data**	-	humus form
	-	parent material
	-	surface expression
	-	horizon designations, horizon depth and associated textures and coarse fragment content
	-	abundance, size and contrast of mottles
	-	soils comments

* Collected for both detailed and reconnaissance data

** Only collected for detailed plots

5.0 Vegetation Mapping Techniques

For the purposes of this project, communities were delineated at the ecosite and ecosite phase (1:20,000 and 1:15,000 scale) hierarchical levels through aerial photography interpretation. A series of tables and decision keys for non-forested, coniferous and deciduous/mixedwood ecosites were developed to aid the air photo interpretation process (Appendix I). Tables A1 to A3 in Appendix I summarize the general ecological conditions for each ecosite phase, including moisture regime, drainage, topographic position and parent materials/landforms. The decision keys (Figures A1 to A4 of Appendix I) use both the canopy composition, topographic and landform features to determine the likely ecosite(s).

The first step of this process involves delineating the dominant canopy composition associated with the particular unit. This requires an understanding of crown characteristics, texture and photograph tone (Gimbarzevsky 1973). In this approach, three general steps (Sayn-Wittegenstein 1960; Howard 1970; Avery 1978) are used for species identification:

- eliminate species that will not occur in the area of interest based on environmental factors,
- apply knowledge of species associations to determine which species might be present, and
- examine crown characteristics.

Once the canopy type was determined for each delineated unit, primary site variables were determined. Primary site variables are those variables that can be directly or indirectly inferred through aerial photographs, and include:

- topographic position,
- soil drainage,
- slope,
- aspect, and
- parent material/landform.

In addition to the aerial photography, existing ecological land classification maps and reports were referenced to help determine parent materials and soil condition. This aided significantly in determining the primary site variables.

The primary site variables were then used to determine secondary site variables, moisture and nutrient regime. Secondary site variables are ecologically important variables, but they must be interpreted from an evaluation of all or some of the primary site variables. Moisture regime, for example, cannot be directly obtained through air photos, but it can be inferred from primary site variables such as topographic position, slope and parent material. Furthermore, determining nutrient regime requires knowledge of the characteristics of different parent materials and soils, seepage and groundwater movement.

Map Unit Symbols

Using the knowledge obtained through the aerial photograph interpretation, the decision keys (Appendix I) were used to determine the most likely ecosite phase. In most cases, a single ecosite

phase was recorded for each polygon delineated. The ecosite phase notation follows that used for ecosite phases in the *Field Guide to ecosites of west-central Alberta* (Beckingham *et al.* 1996).

However, if the selected landforms represent a series of recurring landscape patterns that cannot be separated, a complex map unit was recorded. Additionally, the scale of photography also limited the delineation of certain ecosite phases that tend to be limited in size or are transitional in nature. In cases where it was not possible to distinguish and map the individual communities, it was necessary to combine the two vegetation communities into a complexed unit. Complexing primarily occurred as a result of the interspersed nature of the landscape, where individual vegetation communities could not be identified through airphoto interpretation. Where complexes were recorded, the dominant unit (*i.e.*, >50% area) is listed first (*e.g.*, e3 f3). Primary and secondary site variables were not recorded on the photography, simply to ensure that the photos were easily legible. Only ecosite phase(s) and primary tree species are recorded on the photographs. Several notations were used for listing primary species, with species in brackets denoting a minor, but still significant component of the community. These notations are illustrated below.

Aw-Sw-Pl Sb-Lt	Co-dominant occurrence of species
Aw (Pl) Aw-Sw (Pl)	Species in parentheses comprise <20% total cover

Post-Field Refinement

Once the field data collection was completed, a refinement of the air photo interpretation was initiated. In most cases, linework was not removed. However, in certain areas, additional polygons were delineated where plot data and knowledge of the area could be used to refine the initial classification. Additionally, complex vegetation communities or map units were re-evaluated and were assigned a unique map unit code if possible.

Following the refinement of the linework, a mylar overlay was used to copy the polygon linework from the orthophotos to a medium that could be digitized. The linework was digitized according to the specifications outlined in Section 4.4 of the contract:

- polygons were numbered sequentially starting at the lower right corner and moving form right to left, then up and left to right;
- polygons were digitized as line strings with a relative error of ±0.5 mm from the centreline; and
- polygon text labels were as near the center of the polygon as possible with only one test label point captured per polygon.

All data was converted to the Universal Transverse Mercator (UTM) NAD 83 projection and is in an ArcInfo (.e00) format.

6.0 Results of Vegetation Survey Mapping

The results of the vegetation survey are summarized in the map at the back of the report, which depicts the spatial distribution of these vegetation communities, along with trails and other notable features. The map legend includes a summary of all vegetation community associations that occur in the study area by ecosite phase. Trails, significant wildlife habitat, wildlife observations and other unique landscape features are also identified.

The attribute database, from which the map was constructed, contains a summary of important ecological information for each polygon: ecosite, ecosite phase and plant community type (where information existed from the plot data), moisture and nutrient regimes, slope, parent material and surface expression. The landscape variables were derived from the Integrated Resource inventories that overlap with the study area. A vegetation community type descriptor was also included in the attributes, providing a more comprehensive description of the dominant species associated with a given ecosite phase.

7.0 Description of Vegetation Community Associations

7.1 Vegetation Community Associations

It is important to note that the vegetation community associations described here do not represent the plant community type as defined in the hierarchical ecosite classification system from Beckingham *et al.* (1996). Within the ecosite phase level of resolution exists a number of plant communities (Beckingham *et al.* 1996) that have been rolled up into single vegetation community association (VCA) for the purposes of this project. These broad vegetation communities have been mapped to the ecosite phase level of resolution at the 1:20,000 and 1:15,000 scale. Additionally, the plant community type defined by the Beckingham *et al.* (1996) ecological classification system is at the 1:5,000 scale of resolution, and therefore, is not a mappable unit that can be delineated through airphoto interpretation or other remote sensing means. Thus, the VCAs created here provide a more descriptive account of some of the more dominant or prevalent understorey species that may be associated with each map unit in the study area.

The following summaries provide an overview of the general site and ecological conditions for each vegetation community association that occurs in the study area. Overall, 29 vegetation community associations and 19 vegetation community association complexes were identified. Table 2 provides a summary of all vegetation community associations defined for the study area and their relationship to ecosite and ecosite phase.

Table 2. Summary of Vegetation Community Associations by ecosite and ecosite phase.

Ecosite	Ecosite Phase	VCA	Vegetation Community Association
(a) grassland	a1	1	Bearberry/hairy wild rye grassland
(c) hairy wild rye	c1	2	Pine/bearberry/hairy wild rye
	c2	3	Aspen/saskatoon–bearberry/hairy wild rye
	c3	4	Aspen–white spruce–pine/bearberry hairy wild rye feather moss
	c4	5	White spruce/hairy wild rye
(d) Labrador tea–mesic	d1	6	Pine–black spruce/Labrador tea feather moss (mesic)

Ecosite	Ecosite Phase	VCA	Vegetation Community Association
(e) low-bush cranberry	e1	7	Pine low-bush cranberry
	e2	8	Aspen/prickly rose hairy wild rye
	e3	9	Aspen–white spruce–pine green alder–Canada buffalo-berry hairy wild rye/feather moss
	e4	10	White spruce (balsam fir) feather moss
(f) bracted honeysuckle	f1	11	Pine bracted honeysuckle
	f2	12	Aspen–balsam poplar cow parsnip/marsh reed grass
	f3	13	Aspen–white spruce–pine bracted honeysuckle association
	f4	14	White spruce–balsam fir fern/feather moss
(g) meadow	g1	15	Willow/sedge meadow
	g2	16	Current–wild red raspberry/horsetail meadow
(h) Labrador tea–subhygric	h1	17	Pine–black spruce Labrador tea/feather moss (subhygric)
(i) horsetail	i1	18	Balsam poplar–aspen horsetail
	i2	19	Balsam poplar–white spruce horsetail
	i3	20	White spruce/willow horsetail feather moss
(j) Labrador tea/horsetail	j1	21	Black spruce–white spruce/horsetail feather moss
(k) bog	k1	22	Black spruce/willow–Labrador tea/feather moss–peat moss
(l) poor fen	l1	23	Larch–black spruce/Labrador tea–willow/sedge/peat moss
	l2	24	Dwarf birch–willow/sedge/peat moss
(m) rich fen	m1	26	Larch (black spruce)/dwarf birch–willow sedge/golden moss
	m2	27	Willow/sedge/Richardson's water moss
	m3	28	Sedge/golden moss
(n) marsh	n1	29	Cattail–bulrush sedge marsh
(c) hairy wild rye/(e) low-bush cranberry	c2/e2	3/8	Aspen/saskatoon–bearberry hairy wild rye and Aspen prickly rose hairy wild rye complex
(d) Labrador tea–mesic/(e) low-bush cranberry	d1/e1	6/7	Pine–black spruce Labrador tea/feather moss (mesic) and Pine low-bush cranberry complex
(d) Labrador tea–mesic/(h) Labrador tea–subhygric	d1/h1	6/17	Pine–black spruce Labrador tea/feather moss (mesic) and Pine–black spruce/Labrador tea/feather moss (subhygric) complex
(e) low-bush cranberry/(c) hairy wild rye	e2/c2	8/3	Aspen/prickly rose/hairy wild rye and Aspen saskatoon–bearberry hairy wild rye complex
(e) low-bush cranberry/(f) bracted honeysuckle	e1/f1	7/11	Pine low-bush cranberry and Pine/bracted honeysuckle complex
	e2/f2	8/12	Aspen/prickly rose/hairy wild rye and Aspen–balsam poplar cow parsnip/marsh reed grass complex
	e3/f3	9/13	Aspen–white spruce–pine green alder–Canada buffalo-berry hairy wild rye feather moss and Aspen–white spruce–pine bracted honeysuckle complex
	e4/f1	10/11	White spruce (balsam fir)/feather moss and Pine bracted honeysuckle

Ecosite	Ecosite Phase	VCA	Vegetation Community Association
			complex
	e4/f4	10/14	White spruce (balsam fir)/feather moss and White spruce–balsam fir/fern/feather moss complex
(e) low-bush cranberry/(j) Labrador tea/ horsetail	e4/j1	10/21	White spruce (balsam fir)/feather moss and Black spruce–white spruce/horsetail feather moss complex
(f) bracted honeysuckle/(e) low-bush cranberry	f2/e2	12/8	Aspen–balsam poplar cow parsnip marsh reed grass and Aspen/prickly rose/hairy wild rye complex
	f3/e3	13/9	Aspen–white spruce–pine/bracted honeysuckle and Aspen–white spruce–pine/green alder–Canada buffalo-berry hairy wild rye feather moss complex
	f4/e4	14/10	White spruce/balsam fir/fern/feather moss and White spruce–(balsam fir)/feather moss complex
(f) bracted honeysuckle/(i) horsetail	f3/i2	13/24	Aspen–white spruce–pine/bracted honeysuckle and Dwarf birch–willow/sedge/peat moss complex
	f4/i1	14/18	White spruce–balsam fir/fern/feather moss and Balsam poplar–aspen/horsetail complex
(h) Labrador tea–subhygric (j) Labrador tea/ horsetail	h1/j1	17/21	Pine–black spruce Labrador tea/feather moss (subhygric) and Black spruce–white spruce/horsetail/feather moss complex
(i) horsetail/(j) Labrador tea/ horsetail	i3/j1	20/21	White spruce/willow/horsetail/feather moss and Black spruce–white spruce/horsetail feather moss complex
(i) horsetail/(m) rich fen	i2/m1	19/26	Balsam poplar–white spruce/horsetail and Larch–(black spruce)/dwarf birch–willow/sedge/golden moss complex
(n) marsh/(m) rich fen	n1/m3	29/28	Cattail–bulrush/sedge marsh and Sedge/golden moss complex

There is quite a diversity of community associations in this area ranging from very dry grasslands to wet, black spruce and black spruce–larch dominated, bogs and fens. However, the most commonly occurring vegetation community association is VCA 9, the *Aspen–white spruce–pine/green alder–Canada buffalo-berry/hairy wild rye/feather moss* association that occurs on modal ecosites. A complete list of plant species found during this vegetation survey is provided in Appendix II. A summary of all vegetation communities and associated plant species and percent cover information are provided in Appendix III. Please note that these appendices only contain the information collected for the 2001 vegetation inventory.

Shrubby Grassland Vegetation Community Association

VCA 1: Bearberry/hairy wild rye grassland association

The *Bearberry/hairy wild rye grassland* association is typical of the shrubby grassland (a) ecosite and is characteristically located along very steep (in excess of 60°₀) south or west-facing slopes. These sites are extremely dry, with rapidly draining soils and poor to medium nutrient conditions, resulting in minimal to no tree establishment. As a result, grasslands tend to form the prominent vegetation feature on these sites. Soils are predominantly brunisols or regosols occurring on moraine, fluvial or glaciofluvial parent materials. Some of the more common species associated with this VCA include bearberry, prickly prickly rose, Canada buffalo-berry and hairy wild rye. This community association is very rare throughout the study area. One small area is located in

the Emerson Lakes area along the eskers surrounding the lakes, while several small occurrences are found along the eastern slopes of the northern part of Sundance Creek.

Hairy Wild Rye Vegetation Community Associations

The four VCAs that define this group (VCA 2, VCA 3, VCA 4, and VCA 5) are associated with the hairy wild rye (c) ecosite and are characteristic of sites that tend to occur on steep south to west facing slopes. Site conditions are dry, with rapid to well-drained sandy soils and medium nutrient conditions on brunisols or Brunisolic Gray Luvisols. The predominant parent material is eolian, glaciofluvial or moraine. Pine, aspen and white spruce can be found in the canopy while characteristic understorey species include Canada buffalo-berry, saskatoon, bearberry and hairy wild rye.

Steep southwest facing slopes along the valley perimeter in the southern part of Sundance Provincial Park.

VCA 2: Pine/bearberry/hairy wild rye association

In this association, pine is the dominant overstorey species, though there may be minor inclusions of aspen or white spruce. An open canopy and dry soil conditions promotes the development of an ericaceous understorey dominated by Canada buffalo-berry, bearberry, prickly rose and hairy wild rye. It is also extremely rare in the Sundance area, found only in one isolated pocket traversing the eastern slopes of the southern part of the Sundance Creek valley along a short (< 30 m), steep southwest-facing slope.

VCA 3: Aspen/saskatoon–bearberry/hairy wild rye association

Aspen forms the dominant overstorey species in this association, though minor inclusions of white spruce, pine and balsam poplar can occur. Canada buffalo-berry, saskatoon and hairy wild rye are more common, though bearberry and prickly rose occur in some sites. However, the two plots for which data was collected represent an immature stage of this community association. For these plots, aspen, though present in the shrub layer, did not actually form an overstorey canopy. This community association is most prevalent in the northern part of Sundance Creek along the steep south to west facing, upper slopes of the valley, as well as along the south to east facing slopes, though to a lesser extent.

VCA 4: Aspen–white spruce–pine/bearberry/hairy wild rye association

In these sites, the overstorey canopy composition is diverse, with aspen, white spruce and pine co-occurring. There is a diverse understorey dominated by Canada buffalo-berry, saskatoon, prickly rose, bunchberry and hairy wild rye. Closed canopy conditions promote the growth of feather mosses, such as stairstep moss and red-stemmed feather moss. This is the most common of the hairy wild rye vegetation community associations and is distributed throughout the Sundance study area. It is most commonly found in the Emerson Lakes area, along the eskers surrounding the lakes, as well as some of the slopes in Sundance Creek south. There are small isolated pockets located in north Sundance Creek, along some of the steep west facing slopes.

VCA 5: White spruce/hairy wild rye association

In these sites, white spruce is the dominant overstorey species, though there may be minor inclusions of aspen in the stand. Though the understorey vegetation is still dominated by ericaceous species, though feather moss may be prevalent under closed canopies of white spruce. It is extremely rare in the Sundance area, found only in the northern part of the Sundance valley, with one area occurring along the eastern margins of Beaver Lake.

Labrador tea/Feather moss (mesic) Vegetation Community Association

VCA 6: Pine–black spruce/Labrador tea/feather moss (mesic) association

The *Pine–black spruce/Labrador tea/feather moss* (mesic) association is characteristic of the Labrador tea–mesic (d) ecosite. Site conditions are generally dry to moist and nutrient poor, with well to moderately well drained soils on moraine or glaciofluvial parent materials. Pine and black spruce make up the dominant species in the canopy, with Labrador tea, green alder, prickly rose and twin-flower commonly occurring in the understorey. Bunchberry and fireweed are also characteristic species of these sites, along with the various species of feather moss that tend to predominate under very dense canopies. This is a very small community association, found only in a few isolated areas in the southern part of the Sundance Creek valley, located on north to east facing slopes on the plateau above the valley. There is also a small area located along the eastern perimeter of Sundance Creek north.

Labrador tea/Feather moss (mesic) and Modal Vegetation Community Association Complex

This complex is representative of both the Labrador tea/feather moss (mesic) and modal vegetation community associations that are typical of complexed Labrador tea/feather moss (mesic) (d) and modal Low-bush cranberry (e) ecosites. However, in this complex there is a greater abundance of the Labrador tea/feather moss (mesic) vegetation community associations. These complexed VCAs tend to occur in areas where there is high degree of interspersion in communities due to the composite nature of the landscape. Only one vegetation association complex has been identified, the *Pine–black spruce/Labrador tea/feather moss (mesic) and Pine/low-bush cranberry* complex (VCA 6/VCA 7). The species characteristic of this complex has been previously described under the respective VCA designations that make up the complexed units. This community association is can only be found in one small area along the eastern perimeter of the northern part of the Sundance Valley.

Labrador tea/Feather moss (mesic) and Labrador tea/Feather moss (subhygric) Vegetation Community Association Complex

This complex is representative of both the Labrador tea/feather moss (mesic) and Labrador tea/feather moss (subhygric) vegetation community associations that are typical of complexed Labrador tea/feather moss (mesic) (d) and Labrador tea/feather moss (subhygric) (h) ecosites. However, in this complex there is a greater predominance of the Labrador tea/feather moss (mesic) vegetation community associations. These complexed VCAs tend to occur in areas where there is high degree of interspersion in communities due to the composite nature of the landscape. Only one vegetation association complex has been identified, the VCA 6/VCA 17 complex, composed of the *Pine–black spruce/Labrador tea/feather moss (mesic) and Pine–black spruce/Labrador tea/feather moss (subhygric)* associations. The species characteristic of this

complex have been previously described under the respective VCA designations that make up the complexed units. This community association is not very common but can be found in isolated areas in the northern part of the Sundance Valley, especially along the plateau areas above the valley.

Modal Vegetation Community Associations

There are four VCAs identified for this group (VCA 7, VCA 8, VCA 9 and VCA 10), which are typical of the modal Low-bush cranberry (e) ecosite. These associations tend to be characteristic of a diverse range of upland sites, but are most commonly located on moraine parent materials. Site conditions are mesic with medium nutrient regimes and soils are generally fine to medium textured Gray Luvisols. These sites tend to be located on level to moderately slopes, from crest to midslope positions. Pine, aspen, white spruce, balsam fir and balsam poplar form the dominant overstorey species in pure or mixed stands. Ground vegetation is typically diverse including such shrub species as green alder, prickly rose and low-bush cranberry, with fireweed, bunchberry and wild sarsaparilla dominating the forb cover. Moss cover is limited, only becoming prevalent under closed canopy conditions.

VCA 7: Pine/low-bush cranberry association

Pine is the dominant overstorey species in this association, though there may be minor occurrences of white spruce or aspen in the stand. Some of the more common understorey shrub species typical of this VCA include green alder, low-bush cranberry and prickly rose. Other important species that may be present include bunchberry, fireweed, hairy wild rye and feather moss. Although this community association is found in all three areas of the park, it has a restricted distribution, with the largest extent occurring in the Emerson Lakes area.

VCA 8: Aspen/prickly rose/hairy wild rye association

In this VCA, the dominant overstorey species is aspen, although white spruce or balsam polar may occur in minor amounts. Typical shrub species include Canada buffalo-berry, prickly rose, saskatoon and low-bush cranberry. Wild sarsaparilla, asters and fireweed form a more predominant part of the ground cover, along with hairy wild rye. It is much more common in the study area and is primarily located along the eastern slope faces of the Sundance Creek valley, with the largest extent occurring in Sundance Creek north.

VCA 9: Aspen–white spruce–pine/green alder–Canada buffalo-berry/hairy wild rye/feather moss association

The overstorey species composition of this association is quite diverse with aspen, pine and white spruce co-dominating in most stands. Typical shrub species include green alder, Canada buffalo-berry, prickly rose, saskatoon and low-bush cranberry. The understorey vegetation is typical of modal ecosites, though feather mosses may be present in some areas where there is a dense canopy. This is the most common and widespread vegetation community association in Sundance Provincial Park, spanning all three regions in the study area. Much of the Emerson Lakes area is dominated by this VCA, as are the plateaus above the Sundance Creek valley, although there are only limited occurrences of this association within the valley itself.

VCA 10: White spruce (balsam fir)/feather moss association

The dominant overstorey species associated with this association is white spruce, with inclusions of balsam fir in some stands. Some of the more typical species defining this vegetation association include prickly rose and low-bush cranberry, with feather mosses forming dense carpets under closed canopies. This VCA has a more limited distribution in the study area and is

most common along the east facing slopes of the Sundance Creek valley, though there are some inclusions along lower slope positions on western side of the valley. It is also found in portions of the Emerson Lakes area including one area adjacent to a small stream.

Hairy Wild Rye and Modal Vegetation Community Association Complex

This complex is representative of both the hairy wild rye and modal vegetation community associations that are typical of complexed hairy wild rye (c) and modal low-bush cranberry (e) ecosites. However, in this complex there is a greater proportion of the hairy wild rye vegetation community associations compared to modal associations. These complexed VCAs tend to occur in areas where there is high degree of interspersion in communities due to the composite nature of the landscape. Only one vegetation association complex has been identified, (VCA 3 VCA 8 complex), comprised of the *Aspen/saskatoon–bearberry/hairy wild rye and Aspen/prickly rose/hairy wild rye* associations. The characteristic species of this complex have been previously described under the respective VCA designations that make up the complexed units. This community association is restricted in distribution and can only be found along the east slopes of the Sundance Valley near the southern end of Sundance Creek North.

Modal and Hairy Wild Rye Vegetation Community Association Complex

This complex is representative of both the modal and hairy wild rye vegetation community associations that are typical of complexed modal Low-bush cranberry (e) and hairy wild rye (c) ecosites. However, in this complex there is a greater proportion of the modal vegetation community associations compared to the hairy wild rye association. These complexed VCAs tend to occur in areas where there is high degree of interspersion in communities due to the composite nature of the landscape. Only one vegetation association complex has been identified, the VCA 8 VCA 3 complex, comprised of the *Aspen/prickly rose/hairy wild rye and Aspen/saskatoon–bearberry/hairy wild rye* associations. The characteristic species of this complex has been previously described under the respective VCA designations that make up the complexed units. This community association is also very restricted in distribution and can only be found along portions of the plateau in the southern end of Sundance Creek North.

Modal and Bracted Honeysuckle/Fern Vegetation Community Association Complex

This complex is representative of both the modal and bracted honeysuckle/fern vegetation community associations that are typical of complexed modal low-bush cranberry (e) and bracted honeysuckle (f) ecosites. However, in this complex there is a greater proportion of the modal vegetation community associations compared to bracted honeysuckle/fern associations. These complexed VCAs tend to occur in areas where there is high degree of interspersion in communities due to the composite nature of the landscape. Five vegetation association complexes have been identified:

- The VCA 7/VCA 11 complex comprised of the *Pine/low-bush cranberry* and *Pine/bracted honeysuckle* associations that are dominated by pine,
- The VCA 8/VCA 12 complex comprised of the *Aspen/prickly rose hairy wild rye* and *Aspen–balsam poplar/cow parsnip/marsh reed grass* associations that are dominated by aspen and/or balsam poplar.

- The VCA 9 VCA 13 complex comprised of the *Aspen–white spruce–pine/green alder–Canada buffalo-berry/hairy wild rye/feather moss* and *Aspen–white spruce–pine/bracted honeysuckle* associations that are dominated by mixedwood canopies.
- The VCA 10 VCA 14 complex comprised of the *White spruce (balsam fir)/feather moss* and *White spruce–balsam fir/fern/feather moss* associations that are dominated by white spruce and or balsam fir, and
- The VCA 10 VCA 11 complex comprised of the *White spruce (balsam fir)/feather moss* and *Pine/bracted honeysuckle* associations.

The characteristic species of these five VCA complexes have been previously described under the respective VCA designations that make up the complexed units. Two of the five community association complexes have restricted distributions in Sundance Creek North. Both the VCA 7 VCA 11 and VCA 10 VCA 11 complexes can only found in a few small locales along the western perimeter of the valley near the northern end of the park. In contrast VCA 8/VCA 12 has a much wider distribution and can be found throughout the Special Management Zone in Sundance Creek north. The VCA 9/VCA 13 complex is found throughout the study area, in both the Emerson Lakes area and the plateaus above the Sundance valley, while the VCA 10/VCA 14 complex is only found in scattered locations along the Sundance Creek valley.

Modal and Labrador tea/Horsetail Vegetation Community Association Complex

This complex is representative of both the modal and Labrador tea/horsetail vegetation community associations that are typical of complexed modal low-bush cranberry (e) and Labrador tea/horsetail (j) ecosites. However, in this complex there is a greater proportion of the modal vegetation community associations compared to the Labrador tea/horsetail associations. These complexed VCAs tend to occur in areas where there is high degree of interspersion in communities due to the composite nature of the landscape. Only one vegetation association complex has been identified, the VCA 10/VCA 21 complex, comprised of the *White spruce (balsam fir)/feather moss* and *Pine/bracted honeysuckle* associations. The characteristic species of this complex have been previously described under the respective VCA designations that make up the complexed units. This community association can only be found in one isolated area along the western perimeter of Sundance Creek North in the Special Management Zone.

Bracted Honeysuckle/Fern Vegetation Community Associations

The four vegetation community associations (VCA 11, VCA 12, VCA 13, and VCA 14) identified here are generally associated with bracted honeysuckle (f) ecosites. These associations typically occur on sites comprised of moraine parent materials at middle to lower slope positions. Consequently, nutrients and seepage from upslope positions are carried into these sites, producing moist and nutrient rich conditions at lower slope positions. On more level, upland sites conditions tend to be more mesic. One of the defining features of these sites is the dark, humic organic layer that characteristically occurs at the soil surface. Plant species diversity is often very high on these sites. Balsam poplar generally forms a dominant component of the tree canopy, although aspen, spruce and birch do occur. Typically the understorey vegetation is characterized by an abundance of bracted honeysuckle, devil's-club, cow-parsnip and ferns, that are all indicative of nutrient rich conditions.

VCA 11: Pine/bracted honeysuckle association

Although the overstorey canopy is dominated by pine, there is a high diversity of understorey plant species. These include bracted honeysuckle, cow-parsnip, ferns, marsh reed grass and feather moss under closed canopies. This VCA is restricted in distribution and can only be found in two isolated pockets in Sundance Creek north. One is located at the north end of Beaver Lake, while the other area is in a side stream valley entering the Sundance Creek valley.

VCA 12: Aspen–balsam poplar cow-parsnip/marsh reed grass association

This association is comprised of a mixture of aspen and balsam poplar, with a diverse array of shrubs and forbs. Notable species include wild raspberry, bracted honeysuckle, cow-parsnip, tall larkspur and marsh reed grass that form a major component of the understorey vegetation. Other important species associated with this VCA include green and river alder, and wild currents. This community association has a somewhat wider distribution in the study area, but is still restricted to areas in Sundance Creek north along the lower slopes and valley bottoms of Sundance Creek.

VCA 13: Aspen–white spruce–pine/bracted honeysuckle association

This is one of the most diverse vegetation community associations with respect to species occurrence and abundance. The canopy is primarily comprised of aspen, white spruce and pine, with inclusions of balsam poplar, birch and fir. Notable shrub species include wild raspberry, bracted honeysuckle, low-bush cranberry and prickly rose. Ground cover is dominated by marsh reed grass and feather mosses. It is only found in Sundance Creek north, primarily along the western slopes of the valley near the lakes and is some locations in the Emerson Lakes area.

VCA 14: White spruce–balsam fir/fern/feather moss association

The dominant tree species associated with this VCA is white spruce, although balsam fir frequently occurs in some stands. Balsam fir, bracted honeysuckle and dogwood dominate the shrub layer, while ferns, marsh reed grass and feather mosses form an increasingly important component of the ground cover. This association is found throughout the Sundance Creek study area, although it is most common along the lower slopes on the west side of the Sundance Creek valley.

Bracted Honeysuckle/Fern and Modal Vegetation Community Association Complex

This complex is representative of both the bracted honeysuckle/fern and modal vegetation community associations that are typical of complexed bracted honeysuckle (f) and modal low-bush cranberry (e) ecosites. However, in this complex there is a greater proportion of the bracted honeysuckle/fern vegetation community associations compared to the modal associations. These complexed VCA units tend to occur in areas where there is high degree of interspersion in vegetation communities due to the composite nature of the landscape. Three vegetation association complexes have been identified:

- The VCA 12 VCA 8 complex comprised of the *Aspen–balsam poplar/cow parsnip/marsh reed grass* and *Aspen/prickly rose/hairy wild rye* associations that are dominated by aspen and or balsam poplar.
- The VCA 13 VCA 9 complex comprised of the *Aspen–white spruce–pine/bracted honeysuckle* and *Aspen–white spruce–pine/green alder–Canada buffalo-berry/hairy wild rye/feather moss* associations that are dominated by mixedwood canopies, and

- The VCA 14 VCA 10 complex comprised of the *White spruce–balsam fir/fern/feather moss* and *White spruce (balsam fir)/feather moss* associations that are dominated by white spruce and or balsam fir.

The species characteristic of these VCA complexes have been previously described under the respective VCA designations that make up the complexed units. The VCA 13 VCA 9 complex is most common in the Emerson Lakes area, though it is found throughout the Sundance valley. In contrast, the VCA 14 VCA 10 complex is found in one area along the western slopes of Sundance Creek south and a few isolated areas along the perimeter of the valley in Sundance Creek north. The VCA 12 VCA 8 complex is also quite rare and can only be found in a few isolated areas along the plateau on the eastern part of Sundance Creek north.

Bracted Honeysuckle/Fern and Horsetail Vegetation Community Association Complex

This complex is representative of both the bracted honeysuckle/fern and horsetail vegetation community associations that are typical of complexed bracted honeysuckle (f) and horsetail (i) ecosites. However, in this complex there is a greater proportion of the bracted honeysuckle/fern vegetation community associations when compared to the horsetail associations. These complexed VCA units tend to occur in areas where there is high degree of interspersion in vegetation communities due to the composite nature of the landscape. Two vegetation association complexes have been identified:

- The VCA 13/VCA 24 complex comprised of the *Aspen–white spruce–pine/bracted honeysuckle* and *Dwarf birch–willow/sedge/peat moss* associations, and
- The VCA 14/VCA 18 complex comprised of the *White spruce–balsam fir/fern/feather moss* and *Balsam poplar–aspen/horsetail* associations.

The species characteristic of these VCA complexes have been previously described under the respective VCA designations that make up the complexed units. The VCA13/VCA 24 complex is primarily found along the western plateaus above the Sundance valley in Sundance Creek north, while the VCA14/VCA 18 complex is restricted to one area along the eastern plateau of Sundance Creek north.

Meadow Vegetation Community Associations

There are two VCAs defined for this group (VCA 15 and VCA 16). They are characteristic of the meadow (g) ecosite that typically occurs on fluvial floodplains along the banks of streams and creeks, where periodic flooding provides an influx of nutrients. Sites are generally moist to wet, with rich to very rich nutrient regimes. Fine to medium silty to silty-clay textured regosolic and gleysolic soils are the most common soil types on these sites. Tree cover is limited and willows and/or sedge communities are the two main community associations.

VCA 15: Willow/sedge meadow association

Willows form the dominant cover in this association, along with sedges and marsh reed grass. Marsh skullcap and purple-stemmed aster may also be present, but are less prevalent. This VCA is restricted to the valley bottom of Sundance Creek and isolated occurrences adjacent to wetland areas in Sundance Creek south. The largest areas are found in Sundance Creek north, along the perimeter of the creek and represent important wildlife habitat areas.

VCA 16: Current–wild red raspberry/horsetail/ meadow association

The vegetation associated with this VCA is very diverse, though tree and shrub cover are limited to nonexistent. Wild currants and raspberries, as well as bracted honeysuckle are the predominant shrub species, while horsetails are the most common ground cover. Grasses such as marsh reed grass, fringed brome, awned wheat grass and sedges are also a significant component of this association. Other species that may be present include cow-parsnip, fireweed and tall larkspur. This meadow association is quite rare in the Sundance Creek study area and is restricted in distribution to several small isolated areas along the margins of Sundance Creek and Sundance Lake, or isolated wetland areas in the valley.

Labrador tea/Feather moss (subhygric) Community Association

VCA 17: Pine–black spruce Labrador tea/feather moss (subhygric) association

The *Pine–black spruce/Labrador tea/feather moss (subhygric)* association is typically associated with the Labrador tea–subhygric (h) ecosite. VCAs on these sites are characteristic of moist to very wet sites, with imperfect to poor soil drainage that occur along the base of slopes or adjacent to seepage or riparian zones. Nutrient conditions tend to be poor, in part a result of the acidic conditions that are typical of these sites. They tend to be found on moraine or fluvial parent materials where high soil moisture conditions promote the development of gleysolic soils. Pine and black spruce make up the dominant species in the canopy, with black spruce being more common than pine. The understorey vegetation is dominated by Labrador tea, bog cranberry and feather or peat mosses. Other notable species include bunchberry and marsh red grass. This is a very small vegetation association that is restricted to a small locale in the Emerson Lakes area and isolated pockets throughout Sundance Creek north.

Labrador tea/Feather moss (subhygric) and Labrador tea/Horsetail Vegetation Community Association Complex

This complex is representative of both the Labrador tea/feather moss (subhygric) and Labrador tea/horsetail vegetation community associations that are typical of complexed Labrador tea–subhygric (h) and Labrador tea horsetail (j) ecosites. However, in this complex there is a greater proportion of the Labrador tea feather moss (subhygric) vegetation community associations compared to Labrador tea horsetail associations. These complexed VCA units tend to occur in areas where there is high degree of interspersion in vegetation communities due to the composite nature of the landscape. Only one vegetation association complex has been identified, the VCA 17/VCA 21 complex, comprised of the *Pine–black spruce/Labrador tea/feather moss (subhygric)* and *Black spruce–white spruce/horsetail/feather moss* associations. The characteristic species defining this VCA complex have been previously described under their respective VCA designations that make up this complexed unit. This community association complex is not very common and is only found in a few isolated areas in Sundance Creek north.

Horsetail Vegetation Community Associations

The three VCAs (VCA 18, VCA 19 and VCA 20) identified for this group are characteristic of horsetail (i) ecosites and generally occur at the base of slopes or along fluvial floodplains adjacent to streams and creeks where an influx of nutrients creates rich site conditions. Site conditions are typically moist to wet, with fine-textured gleysolic or regosolic soils. Balsam poplar and white spruce represent the characteristic overstorey species, although aspen and birch may occur on

some sites. The defining understorey species are horsetails, along with bracted honeysuckle, wild currents and marsh reed grass.

VCA 18: Balsam poplar–aspen/horsetail association

Balsam poplar and aspen form the dominant tree canopy in this community association, with horsetails forming the predominant understorey species. Some of the other notable species include willow, saskatoon, wild currents, fireweed, wild strawberry and marsh reed grass. This VCA is restricted to the northern part of the Sundance valley and is primarily found along the lower and toe slope positions adjacent to Sundance Creek on the fluvial floodplain.

VCA 19: Balsam poplar–white spruce/horsetail association

The dominant tree species in this association consists of balsam poplar and white spruce. Horsetails form the predominant understorey species with shrubs such as willow, prickly rose, wild currents and bracted honeysuckle also present. Other species that are commonly associated with this VCA include tall larkspur and marsh reed grass. This community association has a limited distribution and can only be found in two areas in the Emerson Lakes area adjacent to a minor watercourse, as well as a few small, isolated locales along the valley bottom of Sundance Creek and in depressions up on the plateau.

VCA 20: *White spruce/willow/horsetail/feather moss association*

White spruce and horsetail are the defining species of this association. Other notable species include willow, bracted honeysuckle, marsh reed grass and feather moss. This VCA is more prevalent in the study area and is found throughout the northern sections of the Sundance valley, along the margins of Sundance Creek and the lakes, as well as along the Athabasca River in the Emerson Lakes area.

Horsetail and Labrador tea/Horsetail Vegetation Community Association Complex

This VCA complex is representative of both the horsetail and Labrador tea/horsetail vegetation community associations that are characteristic of complexed horsetail (i) and Labrador tea/horsetail (j) ecosites. In this complexed VCA, the horsetail vegetation community associations are more prevalent than the Labrador tea/horsetail associations. These complexed associations tend to occur in areas where there is high degree of interspersion in vegetation due to the composite nature of the landscape. This is especially true in areas where streams and wetlands are interspersed with areas that are less saturated. Only one complex was identified, VCA 20 VCA 21, which is comprised of *White spruce/willow/horsetail/feather moss* and *Black spruce–white spruce/horsetail/feather moss* associations. The defining species of this VCA complex have been previously described under the respective VCA designations that make up this complex. This VCA complex is restricted to two locales along the western plateau of Sundance Creek north.

Horsetail and Rich Fen Vegetation Community Association Complex

This VCA complex is representative of both the horsetail and rich fen vegetation community associations that are characteristic of complexed horsetail (i) and rich fen (m) ecosites. In this complexed VCA, the horsetail vegetation community association is more commonly found than the rich fen associations. In these sites, rich fens characteristically occur in very wet, depressional areas, while the horsetail communities are restricted to the perimeter of wetlands. These complexed associations tend to occur in areas where there is high degree of interspersion in vegetation due to the composite nature of the landscape. This is especially true in areas where

streams and wetlands are interspersed with areas that are less saturated. Only one complex was identified, VCA 19 VCA 26, which is comprised of the *Balsam poplar–white spruce/horsetail* and *Larch (black spruce)/dwarf birch–willow/sedge/golden moss* associations. The defining species of this VCA complex have been previously described under the respective VCA designations that make up this complex. The VCA 19/VCA 26 complex is restricted to Sundance Creek south along the perimeters of Sundance Creek in the valley bottom.

Labrador tea/Horsetail Vegetation Community Association

VCA 21: Black spruce–white spruce/horsetail/feather moss association

The *Black spruce–white spruce /horsetail/feather moss* association is typically associated with Labrador tea horsetail (j) ecosites that are characteristic of wet to very wet sites, with poor drainage and medium nutrient conditions. These sites tend to occur on moraine, glaciolacustrine or organic parent materials that are deposited along the base of slopes or adjacent to seepage or riparian zones. The increased soil moisture conditions results in the development of gleysolic soils, while accumulation of organic matter in these may also lead to the formation of organic soils. Black spruce and white spruce make up the dominant species in the canopy, with Labrador tea, prickly rose and bracted honeysuckle as the predominant shrub species. Horsetail species are still one of the most common understorey species, though marsh red grass and feather moss are present. This community association occurs in all three areas of the study area. It is found in one isolated pocket, adjacent to a stream in the Emerson Lakes area and is located in isolated pockets throughout the valley bottom of Sundance Creek.

Bog Vegetation Community Association

VCA 22: *Black spruce/willow–Labrador tea/feather moss–peat moss association*

The *Black spruce/willow–Labrador tea/feather moss–peat moss* is associated with the bog (k) ecosite. These sites typically occur on level to depressional areas, which result in stagnant water and poorly to very poorly drained soils. These conditions produce an increased accumulation of organic matter as well as a poor to very poor nutrient regime. The soils of this community consist of slowly decomposing peat moss overlying various parent materials. Stunted black spruce forms a sparse canopy, while Labrador tea, cloudberry and peat moss form the dominant ground cover. Lichens may also be present on some of the peat hummocks where micro-site conditions are drier. This community association has a very restricted distribution in the park and is only found in isolated pockets in the Sundance valley.

Poor Fen Vegetation Community Associations

There are two VCAs (VCA 23 and VCA 24) that characterize this group. They are typical of the poor fen (l) ecosite, which generally has a medium nutrient regime, although it can range from nutrient poor to rich, and is therefore considered an intermediate unit. Drainage within these sites is poor to very poor, although water is not stagnant as in the bog community associations. The level to depressional topographic positions associated with these sites, combined with high water tables, result in the accumulation of organic matter.

VCA 23: Larch–black spruce/Labrador tea–willow/sedge/peat moss association

In this association, the canopy is dominated by black spruce in combination with tamarack. Common shrubs associated with these sites include willow, dwarf birch and Labrador tea. Sedges dominate the graminoid layer, while golden moss, tufted moss, brown moss and peat moss cover the forest floor. This community association is found throughout the study area. In the Emerson Lakes area, it is restricted to two areas associated with low-lying depressions, while it can be found throughout the valley bottom in Sundance Creek south. There are also limited distributions throughout parts of Sundance Creek north.

Wet, poor fen located in the southern part of the Sundance Creek valley in Sundance Provincial park.

VCA 24: Dwarf birch–willow/sedge/peat moss association

This community association is characterized by a lack of an overstorey canopy. The trees that do exist tend to be stunted and often do not exceed two to three metres in height. In these sites, shrubs such as willow, dwarf birch and Labrador tea predominate, with sedges, golden moss, tufted moss, brown moss, and peat moss forming the dominant ground cover. This association is only found in the valley bottom in Sundance Creek south. It is restricted to two areas associated with low-lying depressions, along side the creek.

Rich Fen Vegetation Community Associations

There are three VCAs that comprise this group and all are associated with the rich fen (m) ecosite. The level to depressional topographic position associated with these sites result in a water table that is at or near the surface for most of the year. Water tends to flow through these sites, bringing nutrients, thus increasing the overall nutrient status of these sites. As a result, of increased water levels organic matter, comprised of decomposing golden mosses, peat moss, and sedges accumulate in these areas.

Graminiod, shrubby and treed rich fens along the perimeter of Sundance Creek in the southern part of Sundance Provincial Park.

VCA 26: Larch (black spruce)/dwarf birch–willow/sedge/golden moss association

This is the treed phase of the rich fen community associations, where the canopy is dominated by tamarack, with less frequent occurrences of black spruce. The shrub layer generally consists of willow and dwarf birch. Sedges, golden moss and peat moss dominate the ground cover. This community association is restricted to the Sundance Valley and is most common along the fluvial floodplain in the valley bottom, especially in Sundance Creek north, with limited distributions in the extreme southern part of the valley. There are no occurrences of this VCA in the Emerson Lakes area.

VCA 27: Willow/sedge/Richardson's water moss association

In this association, there is no overstorey canopy, thus the shrub strata forms the primary structure. The dominant vegetation on these sites include dwarf birch and/or willow, with a dense ground cover of sedges, golden and peat mosses. This VCA is only found in the Sundance valley, with its largest distribution occurring along the floodplain in the southern part of the valley (Sundance Creek south).

VCA 28:Sedge/golden moss association

Unlike the previous two associations, the *Sedge/golden moss* association has no primary structure above the grass strata. There are no trees and limited occurrences of shrubs associated with this community type. The defining plant species include sedges and marsh reed grass, with shrubs such as willow occurring less frequently. Golden mosses and water mosses are also important components of this association. This VCA, although found throughout the study area is less common than the other rich fen associations. In the Emerson Lakes area, it is restricted to the margins of the lakes, while in the Sundance valley, it is most commonly found along the creek or in depressional areas adjacent to the valley.

Marsh Vegetation Community Association

VCA 29: Cattail–bulrush/sedge marsh association

The *Cattail–bulrush/sedge* marsh is characteristic of the marsh (n) ecosite. This community association is restricted to depressional areas adjacent to water bodies and riparian areas. Water levels are generally above the rooting zone for part or most of the year. Sites such as these are characterized by emergent sedges, rushes and cattails, with aquatic species such as pondweed occurring on the waters surface. It is quite rare in the Sundance study area and only occurs in a few isolated areas in Sundance Creek north.

Marsh and Rich Fen Vegetation Community Association Complex

This VCA complex is representative of both the marsh and rich fen vegetation community associations that are characteristic of complexed marsh (n) and rich fen (m) ecosites. In this complexed VCA, the marsh vegetation community association occurs more frequently than the rich fen associations. In these sites, rich fens characteristically occur in very wet, depressional areas that surround aquatic marshes. These complexed associations tend to occur in areas where there is high degree of interspersion in vegetation due to the composite nature of the landscape. Only one complex was identified, VCA 29/VCA 28, which is comprised of the *Cattail–bulrush/sedge marsh* and *Sedge/golden moss* associations. The defining species of this VCA complex have been previously described under the respective VCA designations that make up this complex. This

complex is restricted to Sundance Creek north in one wetland area along the plateau on the western perimeter of the park.

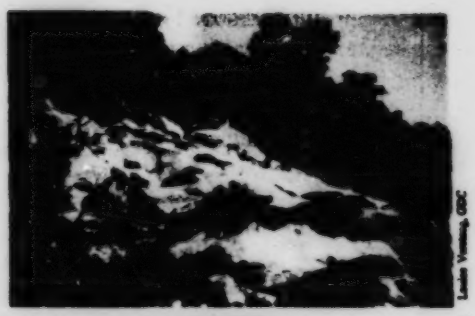
7.2 Management Implications

A large number of the VCAs associated with the Sundance Provincial Park area are often found in small, isolated locales and may be rare. This is especially true of those that are at the extremes of local site conditions (*i.e,*. very wet or very dry). Some community associations, such as the bearberry/hairy wild rye grassland association and the hairy wild rye VCAs are vulnerable to increased human activity, as they typically occur along very steep slopes where erosion potential is high. As a result, these sites may require more intensive monitoring to ensure the ecological integrity of these community associations is maintained. Some of the rich fen and horsetail community associations contain a wide diversity of species, many of which are rare. These communities may need to be tracked for any changes in species diversity that may be occurring as a result of increased human activity. Meadow community associations also have to be carefully managed, as they represent valuable wildlife habitat.

8.0 General Observations and Recommendations

8.1 General Observations

Throughout the course of conducting the vegetation survey a number of general observations were noted regarding unique, sensitive or disturbed areas, wildlife observations or wildlife signs, and visitor activities (*i.e.* hiking trail use, quad trail use, new quad trails, *etc.*). These observations were taken while enroute to establishing plots and provide additional information concerning various aspects of the park.



Hoodoos along the eastern slopes of the northern part of the valley in Sundance Provincial Park.

Along the existing hiking trail that traverses across the eastern slope face of the northern Sundance Valley, hoodoo formations and other erosional features are present along the upper reaches of this slope face. The hoodoo formations represent a landscape feature that is not only unique to the valley but also for this area of Alberta. They are primarily a result of the extremely steep slopes associated with the Sundance Creek valley, which are prone to erosion, as well as solifluction (slumping or mass movement of the upper layers of the soil surface along steep slope faces). One such slumpage area was observed along the eastern slope face of northern Sundance Creek where the hiking trail crosses a seepage area just prior to encountering the hoodoo formations. Along the western slopes of the valley, there are unique freshwater springs

Freshwater springs along the western valley slopes in the northern part of Sundance Provincial Park.

that form waterfalls down the slope face. Many of these springs appear to originate from the rocks, as is the case for the freshwater spring at the Marl Bog in the southern part of the valley. These springs, especially those along the steep slopes, are sensitive to slumping and erosion. There were a number of areas where portions of the slope had collapsed due to recent heavy rains.

Although no mammalian wildlife was observed during the course of this study, the valley bottom showed signs of use by ungulates, such as deer, elk and moose, which had browsed on the willows and birch along the river. Throughout the Sundance valley itself, there are numerous areas along the creek that provide valuable wildlife habitat for these ungulates. The shrubby meadows that border the creek in the northern part of the valley provide good access to forage, water and shelter in the adjacent stands of white spruce along the lower slopes. There is also a significant mineral lick located less than a 100 metres south of the transmission line along the eastern slopes of the valley, just before the transmission line splits into two. The east slopes of the southern part of the valley are bisected by wildlife and horse trails, indicating that wildlife can access the valley via these routes or along existing built trails. Some of the observed bird species included several yellow rumped warblers, a white winged crossbill and an unidentified woodpecker species along a flooded fen in the southern part of the valley. A number of other bird species were heard but not identified.

Freshwater spring near the Marl Bog in the southern part of Sundance Provincial Park.

Sundance Provincial Park is well used by visitors, including the Emerson Lakes area and parts of the Sundance Creek valley. In the northern part of the Sundance valley there is the wild sculptures hiking trail that traverses the eastern slope face down to the hoodoos and down to the Sundance Lakes. There is also a hiking trail along the western slope face that crosses a number of springs and waterfalls as it winds its way down to Sundance Lake. There is also a well-used quad trail traversing the eskers at Emerson lakes and numerous quad trails in use in the southern part of the Sundance valley. In addition, there are several well-used horse trails traversing the eastern slopes of the southern part of the valley and along the top of the plateau.

8.2 Recommendations

The results of this vegetation survey could be used to establish a monitoring or assessment program though

which effective management of the park can be continued for the benefit of all interested parties. Some of the recommendations that have come out of this survey regarding areas that could use further study or may require special management are summarized below:

- Further investigation of the freshwater springs on the western slope face of the northern part of the Sundance Creek valley to determine the source of these springs, the potential impact of forestry activities, as well as the impact of erosion on the slope face;
- Continue to monitor the Marl Fen (marl bog) springs to ensure that they are not adversely affected by anthropogenic activities (*i.e.* monitor spring levels, water quality)
- The marl deposits and plant communities associated with the Marl Fen requires more intensive study to completely characterize the plant communities associated with this area
- Implement a more comprehensive evaluation of the rare plants in the Sundance Provincial Park area to identify significant habitats and potential areas that may be prone to disturbance (natural and anthropogenic) and design a monitoring program that will continue to track rare plant species and significant plant communities specific to the study area; and
- Continue to monitor the use of the valley by wildlife (establish number of species, number of individuals and primary use areas) through observations and feedback from locals and other users of the park.

Freshwater spring near the Marl Bog in the southern part of Sundance Provincial Park.

Additionally, The ATV (quad) corridor through the southern half the Sundance valley is currently under investigation by Parks and Protected Areas, as ATV usage within any provincial park boundaries is not acceptable under The Parks Act. The use of quads in any of the areas within the park can have adverse effects on the ecological integrity of the area. Quad trails along the steep valley slopes increase the potential for soil erosion and compaction, which can have detrimental effects on the valley slopes, as well as the entire hydrology of the valley. ATV trails that pass through wet areas (bogs and fens) compact the peat or sedge material, impacting water levels and altering the composition of the bog, as well as the plant communities associated with these areas. As a result, it is recommended that the existing ATV trails within the park boundary be closed to ATV activity. It is hoped that through the implementation of these recommendations that this unique provincial park can be managed for the benefit of all interested parties

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Selected Glossary

aspect – the orientation of a slope face as determined by the points of a compass. Level sites have no aspect.

crown characteristics – the structure or form of the upper branches of a tree species. Aspen tend to have wide, bushy crowns, while lodgepole pine have very tall and narrow crowns.

dominant canopy composition – the primary tree species that define a given stand or selected geographical area.

drumlin – a long egg-shaped hummock or hill that was deposited and shaped beneath an ice sheet or very large glacier.

eolian – wind-borne deposits comprised of well sorted, poorly compacted fine sands or silts.

ericaceous species – referring to the heath plant family (bearberry, Labrador tea, bog cranberry and blueberry) whose members have characteristic leathery leaves and wooly stems, often growing close to the ground.

eskers – a long ridge of material formed as a result of meltwater streams running beneath a glacier parallel to the direction of ice flow.

evapotranspiration deficits – where the water loss from soil through evaporation and transpiration from plants exceeds the amount of water entering the system as precipitation.

fluted moraine till deposits – well compacted, non-stratified sand, silt and clay deposits that are characterized by an upper surface with subparallel ridges and hollows (flutes) that run parallel to the direction of ice flow.

glaciolacustrine deposits – fine textured deposits (silts, clays) deposited where melting glaciers formed large bodies of standing water (lakes).

glaciofluvial deposits – coarse textured deposits (gravels, sands) originating from the outflow of streams and rivers associated with melting glaciers.

graminoid layer – consisting of, or pertaining to, grasses, sedges and other grass-like forms.

hibernacula – a cave, tree hollow or other enclosed structure that serves as shelter for hibernating animals (*i.e.*, bats).

humus form – state of organic or intermixed organic and mineral residues that form the soil horizons at or near the surface.

interspersion – to be placed at regular intervals within or among something else *(i.e.*, the landscape pattern of wetlands among upland sites).

mineral licks – deposits of mineral salts at or near the surface that are frequented by animals (ungulates in particular) as a source of important nutrients and minerals.

modal ecosites – sites that are more strongly influenced by regional climatic effects than by landscape features or edaphic conditions specific to that area. These sites are characterized by deep, well-drained, medium-textured soils with adequate nutrients for plant growth. Synonym with reference site.

moisture regime – represents the availability of moisture for plant growth along a relative scale that ranges from very dry to wet. It is determined by an assessment of soil, site and vegetation characteristics.

> **mesic** – pertaining to soil conditions in which water is removed somewhat slowly relative to supply and soil conditions remain moist, but not saturated for most of the growing season.
>
> **subhygric** – pertaining to soil conditions in which water is removed at a slow enough rate to keep soil conditions saturated (wet) for a significant part of the growing season. Temporary seepage may occur under these moisture conditions.

moraine till deposits – landforms deposited by glaciers or ice sheets, characterized by a well compacted, non-stratified mixture of sand, silt and clay.

mottles – orange staining of the soil that contrasts with the dominant soil colour or matrix colour indicating that the soil is saturated with water for part of the year.

nutrient regime – represents the amount of nutrients available for plant growth along a relative scale from very poor to very rich. It is determined through an assessment of a umber of biotic and environmental parameters.

parent material – depositional materials from which soil is formed at the surface.

predominant – the main characteristic species of a unit with generally the highest mean cover.

slumpage – an area along a slope face (usually steep) where rock and/or soil move as a unit down the slope.

understorey vegetation – plant species growing below the tree canopy. Typically these are comprised of lower growing trees, shrubs, forbs, grasses, mosses and lichens.

Appendix I. Tables and Decision Keys for Non-forested, Coniferous and Deciduous/Mixedwood Ecosites

Table A1. General Environmental Characteristics of Non-Forested Ecosite Phases–Lower Foothills

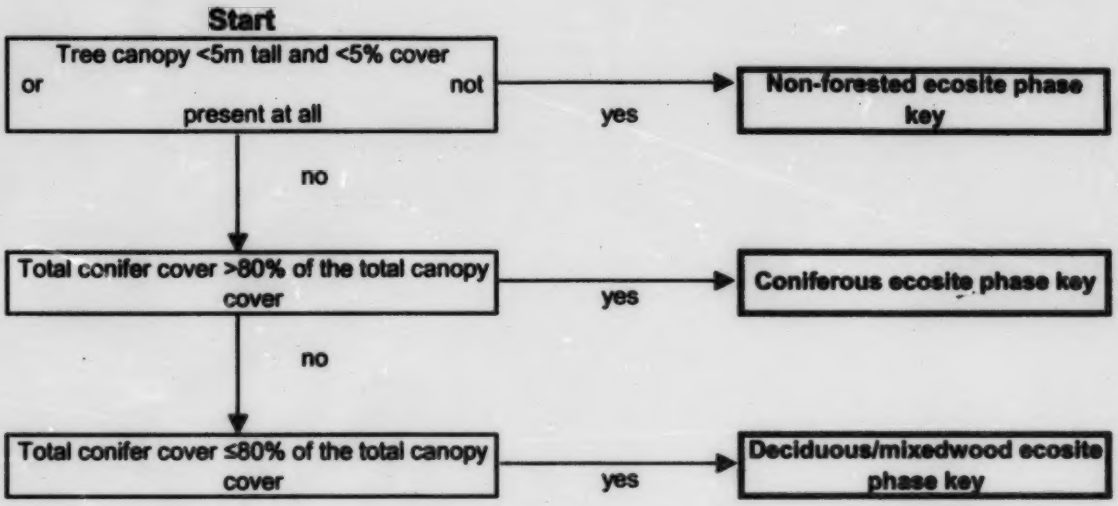
Ecosite Phase	Moisture Regime	Nutrient Regime	Drainage	Topographic Position	Parent Material/ Landform	Common Great Groups	Effective Texture
a1	xeric to subxeric	poor to medium	very rapid to rapid	upper to mid-slope	moraine, glaciofluvial or fluvial	Eutric Brunisol, Regosol	SCL, LS, C
g1/g2	subgygric to hygric	rich	imperfect	level to depressional	fluvial	Humic Gleysol, Regosols, Gleysols	SiC, SiL, SiCL, SL, SCL
k2	hygric	poor to very poor	poor to very poor	level to depressional	organic (bog)	Mesisol, Gleysol	F, CL
l2	hygric to subhydric	medium	poor to very poor	midslope	organic (fen)	Mesisol, Humisols, Cryosols	M, F
m2/m3	subhydric to hydric	medium to rich	poor to very poor	level to depressional	organic (fen)	Mesisols, Gleysols, Fibrisols	M, F, H
n1	hydric to subhydric	rich	very poor to poor	level to depressional	organic, lacustrine or fluvial	Humic Gleysol, Gleysol, Fibrisol	F, SiC, CL

Table A2. General Environmental Characteristics of Coniferous Ecosite Phases–Lower Foothills

Ecosite Phase	Moisture Regime	Nutrient Regime	Drainage	Topographic Position	Parent Material/ Landform	Common Great Groups	Effective Texture
b1	subxeric to xeric	poor	rapid to well	crest and upper slope, level	glaciofluvial, fluvial and eolian	Eutric Brunisols, Dystric Brunisols	LS, S, SL, SCL
c1/c4	subxeric to submesic	medium	rapid to well	upper to mid-slope	eolian, glaciofluvial, moraine	Eutric Brunisols, Gray Luvisols	SiCL, SCL, S, LS
d1	submesic to mesic	poor	well to moderately well	level, mid- or upper slope	moraine or glaciofluvial	Gray Luvisol, Dystric and Eutric Brunisols	SiCL, C, CL, SCL
e1/e4	mesic to subhygric	medium	well to moderately well	mid-slope, level or upper slope	moraine	Gray Luvisol, Luvic Gleysols	C, CL, SiC, SCL, SiCL
f1/f4	mesic to subhygric	rich	moderately well to imperfect	mid-slope, lower slope or level	moraine, fluvial or glaciofluvial	Gray Luvisols, Luvic Gleysol	C, CL, SiCL, SiC
h1	subhygric to hygric	poor	imperfect to poor	level, midslope or lower slope	moraine or fluvial	Luvic Gleysol, Gray Luvisol, Gleysol	C, CL, SiCL, SCL
i3	subhygric to hygric	medium to rich	moderately well, imperfect and poor	level and lower slope	fluvial, glaciolacustrine and moraine	Regosol, Luvic and Humic Gleysol	SiC, SCL, CL, C, SiL
j1	hygric to subhydric	medium	poor to very poor	level , lower slope, toe or depression	organic, moraine, glaciolacustrine	Mesisol, Humisol, Gleysol	M, F, H, CL, C
k1	subhydric to hydric	very poor to poor	poor to very poor	level to depressional	organic, organic over glaciolacustrine and moraine	Mesisol, Fibrisol, Humisol, Gleysol	M, F, H, CL, C
l1	subhydric to hydric	medium to rich	poor to very poor	level to depressional	organic (fen)	Mesisols, Fibrisols	M, F, H
m1	hydric to subhydric	rich	very poor to poor	level to depressional	organic, lacustrine or fluvial	Humic Gleysol, Gleysol, Fibrisol	F, SiC, CL

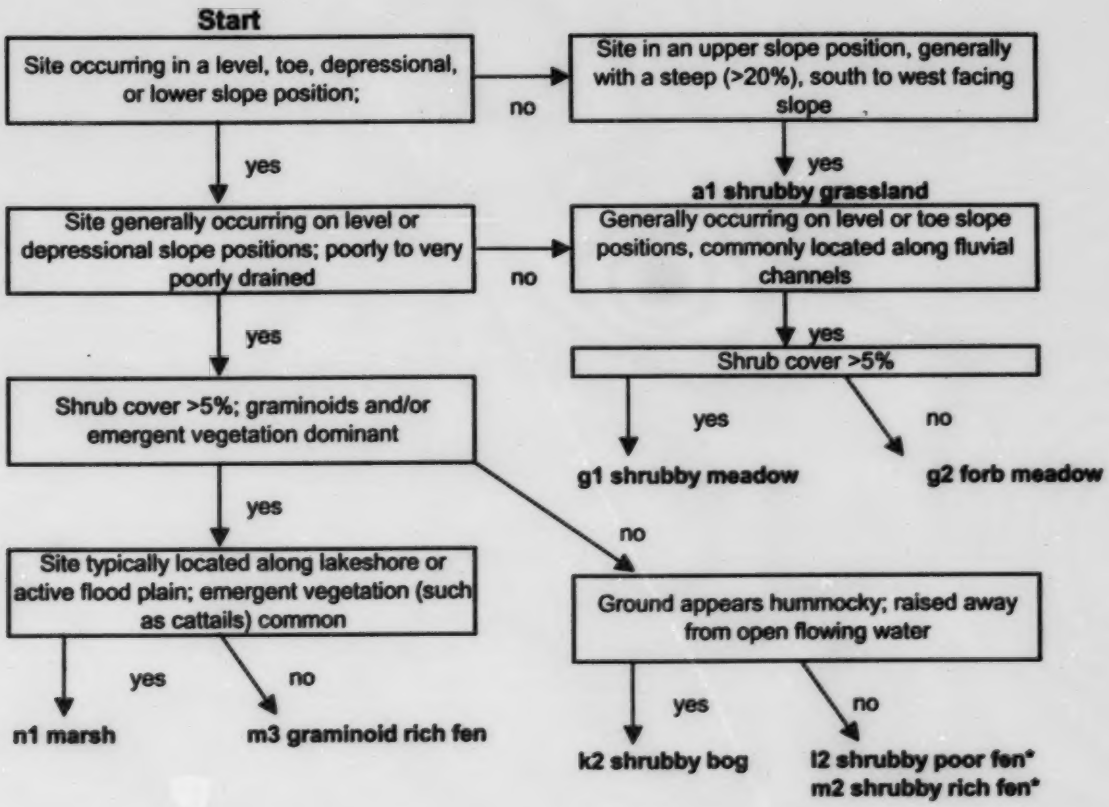
Table A3. General Environmental Characteristics of Deciduous/Mixedwood Ecosite Phases–Lower Foothills

Ecosite Phase	Moisture Regime	Nutrient Regime	Drainage	Topographic Position	Parent Material/ Landform	Common Great Groups	Effective Texture
c2/c3	subxeric to submesic	medium	rapid to well	upper to mid-slope	eolian, glaciofluvial, moraine	Eutric Brunisols, Gray Luvisols	SiCL, SCL, S, LS
e2/e3	mesic to subhygric	medium	well to moderately well	mid-slope, level or upper slope	moraine	Gray Luvisol, Luvic Gleysols	C, CL, SiC, SCL, SiCL
f2/f3	mesic to subhygric	rich	moderately well to imperfect	mid-slope, lower slope or level	moraine, fluvial or glaciofluvial	Gray Luvisols, Luvic Gleysol	C, CL, SiCL, SiC
i1/i2	subhygric to hygric	medium to rich	moderately well, imperfect and poor	level and lower slope	fluvial, glaciolacustrine and moraine	Regosol, Luvic and Humic Gleysol	SiC, SCL, CL, C, SiL



Note: Tamarack (larch) is a deciduous conifer tree. When it occurs as a tree, it is found in the coniferous key and when it occurs as a shrub or stunted tree, it is found in the non-forested key.

Figure A1. Overall Ecosite Phase Key


Start
Site occurring in a level, toe, depressional, or lower slope position;
no
Site in an upper slope position, generally with a steep (>20%), south to west facing slope
yes
yes
a1 shrubby grassland
Site generally occurring on level or depressional slope positions; poorly to very poorly drained
no
Generally occurring on level or toe slope positions, commonly located along fluvial channels
yes
yes
Shrub cover >5%
Shrub cover >5%; graminoids and/or emergent vegetation dominant
yes
no
g1 shrubby meadow
g2 forb meadow
yes
no
Site typically located along lakeshore or active flood plain; emergent vegetation (such as cattails) common
Ground appears hummocky; raised away from open flowing water
yes
no
yes
no
n1 marsh
m3 graminoid rich fen
k2 shrubby bog
l2 shrubby poor fen*
m2 shrubby rich fen*

* Requires field verification to differentiate between the two possible ecosite phases

Figure A2. Air Photo Interpretation Key for Non-Forested Ecosite Phases–Lower Foothills

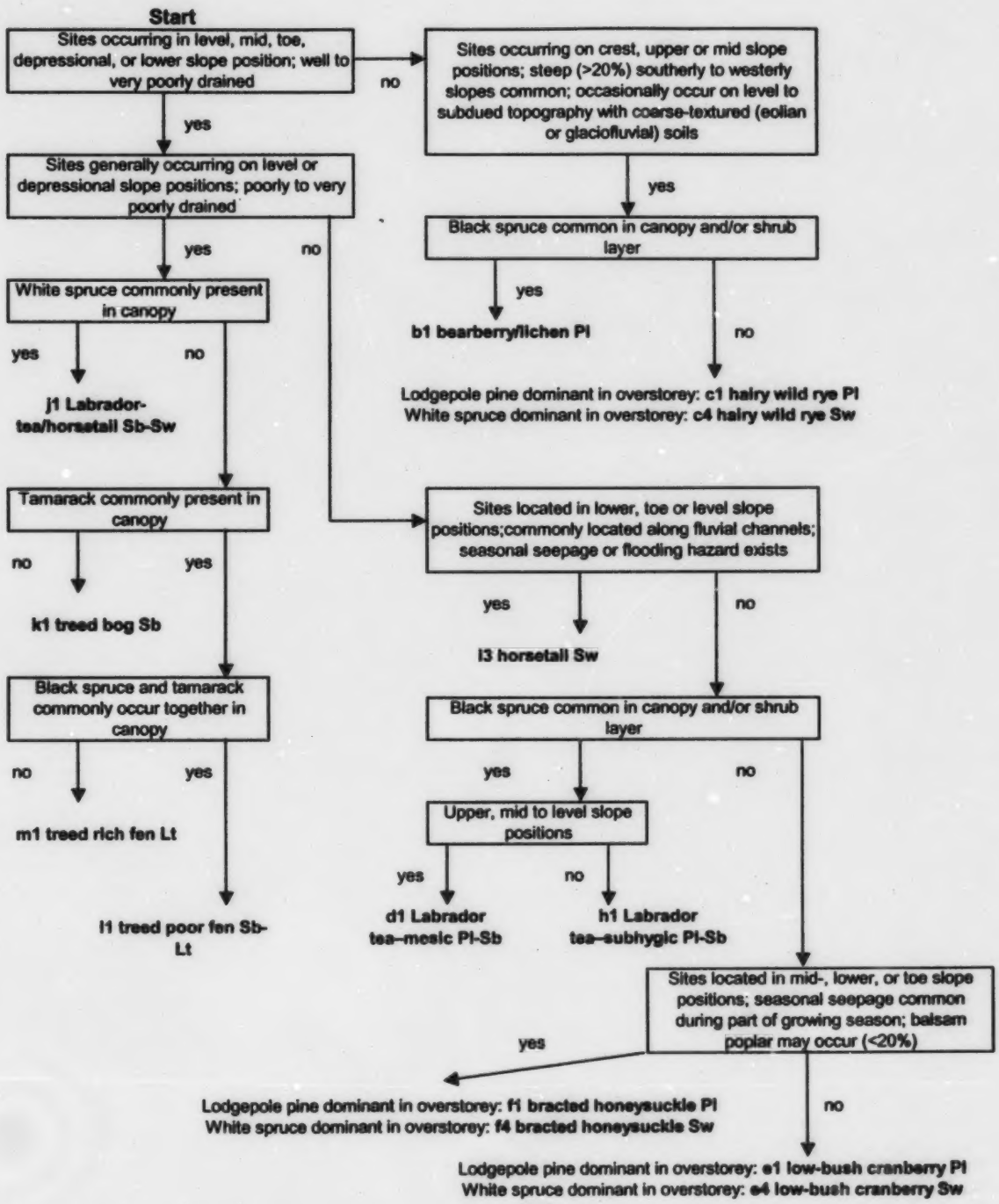
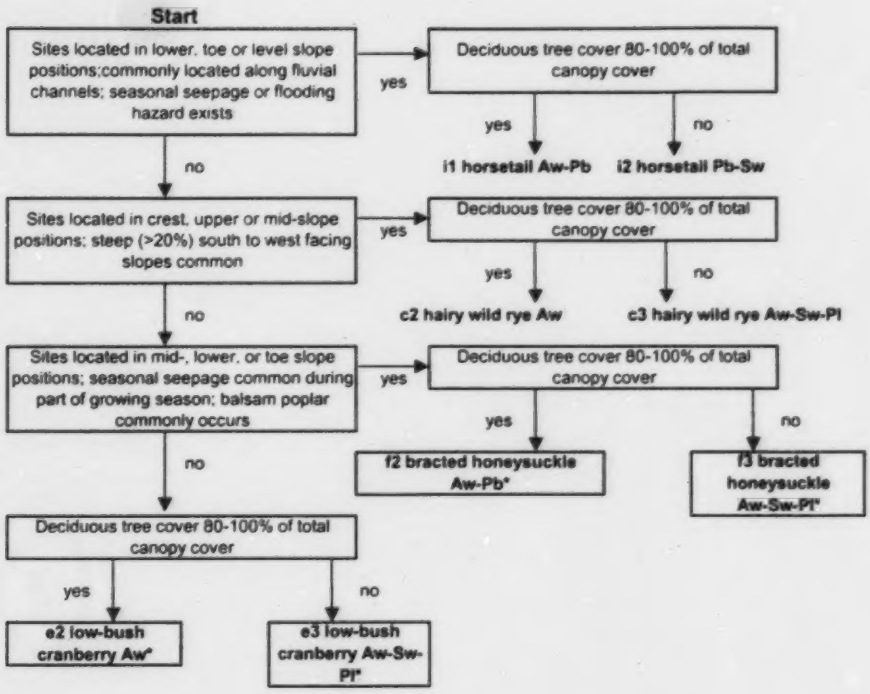

Start
Sites occurring in level, mid, toe, depressional, or lower slope position; well to very poorly drained
no
Sites occurring on crest, upper or mid slope positions; steep (>20%) southerly to westerly slopes common; occasionally occur on level to subdued topography with coarse-textured (eolian or glaciofluvial) soils
yes
Sites generally occurring on level or depressional slope positions; poorly to very poorly drained
yes
Black spruce common in canopy and/or shrub layer
yes
b1 bearberry/lichen Pl
no
Lodgepole pine dominant in overstorey: c1 hairy wild rye Pl
White spruce dominant in overstorey: c4 hairy wild rye Sw
yes
no
White spruce commonly present in canopy
yes
no
j1 Labrador-tea/horsetail Sb-Sw
Tamarack commonly present in canopy
no
yes
k1 treed bog Sb
Black spruce and tamarack commonly occur together in canopy
no
yes
m1 treed rich fen Lt
l1 treed poor fen Sb-Lt
Sites located in lower, toe or level slope positions;commonly located along fluvial channels; seasonal seepage or flooding hazard exists
yes
no
l3 horsetail Sw
Black spruce common in canopy and/or shrub layer
yes
no
Upper, mid to level slope positions
yes
no
d1 Labrador tea–mesic Pl-Sb
h1 Labrador tea–subhygic Pl-Sb
Sites located in mid-, lower, or toe slope positions; seasonal seepage common during part of growing season; balsam poplar may occur (<20%)
yes
no
Lodgepole pine dominant in overstorey: f1 bracted honeysuckle Pl
White spruce dominant in overstorey: f4 bracted honeysuckle Sw
Lodgepole pine dominant in overstorey: e1 low-bush cranberry Pl
White spruce dominant in overstorey: e4 low-bush cranberry Sw

Figure A3. Air Photo Interpretation Key for Coniferous Ecosite Phases–Lower Foothills


Start
Sites located in lower, toe or level slope positions;commonly located along fluvial channels; seasonal seepage or flooding hazard exists
yes
Deciduous tree cover 80-100% of total canopy cover
yes
no
i1 horsetail Aw-Pb
i2 horsetail Pb-Sw
no
Sites located in crest, upper or mid-slope positions; steep (>20%) south to west facing slopes common
yes
Deciduous tree cover 80-100% of total canopy cover
yes
no
c2 hairy wild rye Aw
c3 hairy wild rye Aw-Sw-Pl
no
Sites located in mid-, lower, or toe slope positions; seasonal seepage common during part of growing season; balsam poplar commonly occurs
yes
Deciduous tree cover 80-100% of total canopy cover
yes
no
f2 bracted honeysuckle Aw-Pb*
f3 bracted honeysuckle Aw-Sw-Pl*
no
Deciduous tree cover 80-100% of total canopy cover
yes
no
e2 low-bush cranberry Aw*
e3 low-bush cranberry Aw-Sw-Pl*

* Seepage locations commonly occur within recurring lanscape patterns, with modal sites in upper locations and richer sites located downslope. Differentiating between the two units is thus scale dependent, and are consequently often mapped as a complexed map unit.

Figure A4. Air Photo Interpretation Key for Deciduous/Mixedwood Ecosite Phases–Lower Foothills

Appendix II. Plant Species List

This is a complete list of all plant species encountered in the 2001 vegetation survey. Alberta Natural heritage Information Centre (ANHIC) tracking code ranks for Alberta are as follows (adapted from the ANHIC website, http: www3.gov.ab.ca env parks anhic plant.pdf February 2001):

G=global rank ; S=Alberta rank

- G1/S1: < 5 occurrences or only a few remaining individuals.
- G2/S2: 6-20 occurrences or with many individuals in fewer occurrences.
- G3/S3: 21-100 occurrences may be rare and local throughout its range, or in a restricted range (may be abundant in
- some locations or may be vulnerable to extirpation because of some factor of its biology).
- G4/S4: apparently secure under present conditions, typically >100 occurrences but may be fewer with many large
- populations; may be rare in parts of its range, especially peripherally.
- G5/S5: demonstrably secure under present conditions, > 100 occurrences, may be rare in parts of its range,
- especially peripherally.
- GU/SU: status uncertain often because of low search effort or cryptic nature of the element; possibly in peril, unrankable, more information needed,
- GH/SH: historically known, may be relocated in the future. And

All ranks coded as NA were not ranked by ANHIC as these are common or widespread species.

Plant Species List

Common Name	Scientific Name	ANHIC Tracking List S Rank	G Rank
balsam fir	*Abies balsamea*	NA	NA
common yarrow	*Achillea millefolium*	NA	NA
red and white baneberry	*Actaea rubra*	NA	NA
slender wheat grass	*Agropyron trachycaulum*	NA	NA
awned wheat grass	*Agropyron subsecundem*	NA	NA
green alder	*Alnus crispa*	NA	NA
river alder	*Alnus tenuifolia*	NA	NA
saskatoon	*Amelanchier alnifolia*	NA	NA
dwarf bog rosemary	*Andromeda polifolia*	NA	NA
cut-leaved anemone	*Anemone multifida*	NA	NA
Canada anemone	*Anemone canadensis*	NA	NA
broad-leaved pussytpoes	*Antennaria neglecta*	NA	NA
spreading dogbane	*Apocynum androsaemifolium*	NA	NA
wild sarsaparilla	*Aralia nudicaulis*	NA	NA
bearberry	*Arctostaphylos uva-ursi*	NA	NA
heart-leaved arnica	*Arnica cordifolia*	NA	NA
marsh aster	*Aster borealis*	NA	NA
fringed aster	*Aster ciliolatus*	NA	NA
showy aster	*Aster conspicuus*	NA	NA
purple-stemmed aster	*Aster puniceus*	NA	NA
American milk-vetch	*Astragalus americanus*	NA	NA
Canadian milk-vetch	*Astragalus canadensis*	NA	NA
tufted moss	*Aulacomnium palustre*	NA	NA
maple liverwort	*Barbilophozia lycopodioides*	NA	NA
bog birch	*Betula glandulosa*	NA	NA
white birch	*Betula papyrifera*	NA	NA
dwarf birch	*Betula pumila*	NA	NA
velvet feathermoss	*Brachythecium velutinum*	NA	NA
fringed brome	*Bromus ciliatus*	NA	NA
marsh reed grass	*Calamagrostis canadensis*	NA	NA
giant water moss	*Calligieron giganteum*	NA	NA
Richardson's water moss	*Calligieron richardsonii*	NA	NA
harebell	*Campanula rotundifolia*	NA	NA
yellow star moss	*Campylium stellatum*	NA	NA
water sedge	*Carex aquatilis*	NA	NA
Bebb's sedge	*Carex bebbii*	NA	NA
short sedge	*Carex canescens*	NA	NA
Dewy's sedge	*Carex deweyana*	NA	NA
two-seeded sedge	*Carex disperma*	NA	NA
northern bog sedge	*Carex gynocrates*	NA	NA
Sartwell's sedge	*Carex sartwellii*	NA	NA
hay sedge	*Carex siccata*	NA	NA
sedges	*Carex* spp.	NA	NA
beaked sedge	*Carex utriculata*	NA	NA
common red paintbrush	*Castilleja miniata*	NA	NA
purple horn-toothed moss	*Ceratodon purpureus*	NA	NA
powcer funnel cladonia	*Cladonia cenotea*	NA	NA
false pixie-cup	*Cladonia chlorophaea*	NA	NA
horn cladonia	*Cladonia cornuta*	NA	NA
shrub funnel lichen	*Cladonia crispata*	NA	NA
brown-foot cladonia	*Cladonia gracilis*	NA	NA

Plant Species List Continued

Common Name	Scientific Name	ANHIC Tracking List S Rank	G Rank
sieve cladonia	*Cladonia multiformis*	NA	NA
grey reindeer lichen	*Cladina rangiferina*	NA	NA
sulphur cup	*Cladonia sulphurina*	NA	NA
common tree moss	*Climacium dendroides*	NA	NA
bunchberry	*Cornus canadensis*	NA	NA
red-osier dogwood	*Cornus stolonifera*	NA	NA
tall larkspur	*Delphinium glaucum*	NA	NA
tufted hair grass	*Deschampsia caespitosa*	NA	NA
electric eels	*Dicranum polysetum*	NA	NA
broom moss	*Dicranum scoparium*	NA	NA
wavy dicranum	*Dicranum undulatum*	NA	NA
fairybells	*Disporum trachycarpum*	NA	NA
common hook moss	*Drepanocladus aduncus*	NA	NA
water hook moss	*Drepanocladus fluitans*	NA	NA
red hook moss	*Drepanocladus revolvens*	NA	NA
sickle moss	*Drepanocladus uncinatus*	NA	NA
narrow spiny woodfern	*Dryopteris austriaca*	NA	NA
silverberry	*Elaeagnus commutata*	NA	NA
hairy wild rye	*Elymus innovatus*	NA	NA
fireweed	*Epilobium angustifolium*	NA	NA
common horsetail	*Equisetum arvense*	NA	NA
swamp horsetail	*Equisetum fluviatile*	NA	NA
meadow horsetail	*Equisetum pratense*	NA	NA
dwarf-scouring rush	*Equisetum scirpoides*	NA	NA
woodland horsetail	*Equisetum sylvaticum*	NA	NA
smooth fleabane	*Erigeron glabellus*	NA	NA
tall cotton-grass	*Eriophorum angustifolium*	NA	NA
common beaked moss	*Eurhynchium pulchellum*	NA	NA
narrow-leaved Chinese pheonix moss	*Fissidens grandifrons*	S2	G3G5
woodland strawberry	*Fragaria vesca*	NA	NA
wild strawberry	*Fragaria virginiana*	NA	NA
northen bedstraw	*Galium boreale*	NA	NA
sweet-scented bedstraw	*Galium triflorum*	NA	NA
northern gentian	*Gentianelle amarella*	NA	NA
bastard toad-flax	*Geocaulon lividum*	NA	NA
Bicknell's geranium	*Geranium bicknellii*	NA	NA
white geranium	*Geranium richardsonii*	NA	NA
geranium species	*Geranium* spp.	NA	NA
yellow avens	*Geum aleppicum*	NA	NA
large-leaved avens	*Geum macrophyllum*	NA	NA
purple avens	*Geum rivale*	NA	NA
tall manna grass	*Glyceria grandis*	NA	NA
lesser rattlesnake-plantain	*Goodyera repens*	NA	NA
northern green bog-orchid	*Habenaria hyperborea*	NA	NA
blunt-leaved bog-orchid	*Habenaria obtusata*	NA	NA
bracted bog-orchid	*Habenaria viridis*	NA	NA
alpine sweet-vetch	*Hedysarum alpinum*	NA	NA
Blandow's feathermoss	*Helodium blandowii*	NA	NA
cow-parsnip	*Heracleum lanatum*	NA	NA

Plant Species List Continued

Common Name	Scientific Name	ANHIC Tracking List S Rank	G Rank
narrow-leaved hawkweed	*Hieracium umbellatum*	NA	NA
—	*Hypnum vaucheri*	NA	NA
wire rush	*Juncus balticus*	NA	NA
common juniper	*Juniperus communis*	NA	NA
tamarack	*Larix laricina*	NA	NA
cream-coloured peavine	*Lathyrus ochroleucus*	NA	NA
Labrador tea	*Ledum groenlandicum*	NA	NA
—	*Lephozia ventricosa*	NA	NA
western wood lily	*Lilium philadelphicum*	NA	NA
twin-flower	*Linnaea borealis*	NA	NA
heart-leaved twayblade	*Listera cordata*	NA	NA
twining honeysuckle	*Lonicera dioca*	NA	NA
bracted honeysuckle	*Lonicera involucrata*	NA	NA
fly honeysuckle	*Lonicera villosa*	NA	NA
wild lily-of-the-valley	*Maianthemum canadense*	NA	NA
green-tongue liverwort	*Marchantia polymorpha*	NA	NA
tall lungwort	*Mertensia paniculata*	NA	NA
bishop's-cap	*Mitella nuda*	NA	NA
one-flowered wintergreen	*Monenses uniflora*	NA	NA
one-sided wintergreen	*Orthilia secunda*	NA	NA
rough-leaved rice grass	*Oryzopsis asperifolia*	NA	NA
northern rice grass	*Oryzopsis pungens*	NA	NA
spreading sweet-cicely	*Osmorhiza depauperata*	NA	NA
small bog cranberry	*Oxycoccos microcarpos*	NA	NA
silky locoweed	*Oxytropis sericea*	NA	NA
showy locoweed	*Oxytropis splendens*	NA	NA
northern grass-of-parnassus	*Parnassia palustris*	NA	NA
elephant's-head	*Pedicularis groenlandica*	NA	NA
swamp lousewort	*Pedicularis parviflora*	NA	NA
freckle pelt	*Peltigera aphthosa*	NA	NA
dog pelt	*Peltigera canina*	NA	NA
palmate-leaved coltsfoot	*Petasites palmatus*	NA	NA
silky scorpionweed	*Phacelia sericea*	NA	NA
white spruce	*Picea glauca*	NA	NA
black spruce	*Picea mariana*	NA	NA
lodgepole pine	*Pinus contorta*	NA	NA
toothed mnium	*Plagiomnium ciliare*	NA	NA
woodsy leafy moss	*Plagiomnium cuspidatum*	NA	NA
marsh magnificent moss	*Plagiomnium ellipticum*	NA	NA
—	*Plagiochila porelloides*	NA	NA
common flat-brocade moss	*Platygyrium repens*	NA	NA
red-stemmed feather moss	*Pleurozium schreberi*	NA	NA
fowl bluegrass	*Poa palustris*	NA	NA
Kentucky bluegrass	*Poa pratensis*	NA	NA
common hair-cap	*Polytrichum commune*	NA	NA
awned hair-cap	*Polytrichum piliferum*	NA	NA
slender hair-cap	*Polytrichum strictum*	NA	NA
balsam poplar	*Populus balsamifera*	NA	NA
aspen	*Populus tremuloides*	NA	NA
shrubby cinquefoil	*Potentilla fruticosa*	NA	NA

Plant Species List Continued

Common Name	Scientific Name	ANHIC Tracking List S Rank	ANHIC Tracking List G Rank
marsh cinquefoil	*Potentilla palustris*	NA	NA
three-toothed cinquefoil	*Potentilla tridentata*	NA	NA
northern Naugehyde liverwort	*Ptilidium ciliare*	NA	NA
knights plume	*Ptilium crista-castrensis*	NA	NA
common pink wintergreen	*Pyrola asarifolia*	NA	NA
small yellow water-buttercup	*Ranuculus gmelinii*	NA	NA
wild black current	*Ribes americanum*	NA	NA
northern black current	*Ribes hudsonianum*	NA	NA
black gooseberry	*Ribes lacustre*	NA	NA
northen gooseberry	*Ribes oxyacanthoides*	NA	NA
prickly rose	*Rosa acicularis*	NA	NA
dwarf raspberry	*Rubus acaulis*	NA	NA
wild red raspberry	*Rubus idaeus*	NA	NA
dewberry	*Rubus pubescens*	NA	NA
western dock	*Rumex occidentalis*	NA	NA
little-tree willow	*Salix arbusculoides*	NA	NA
beaked willow	*Salix bebbiana*	NA	NA
hoary willow	*Salix candida*	NA	NA
Drummond's willow	*Salix drummondiana*	NA	NA
grey-leaved willow	*Salix glauca*	NA	NA
western shining willow	*Salix lucida*	NA	NA
yellow willow	*Salix lutea*	NA	NA
velvet-fruited willow	*Salix maccalliana*	NA	NA
myrtle-leaved willow	*Salix myrtillifolia*	NA	NA
bog willow	*Salix pedicellaris*	NA	NA
flat-leaved willow	*Salix planifolia*	NA	NA
autumn willow	*Salix serissima*	NA	NA
willow	*Salix* spp.	NA	NA
snakeroot	*Sanicula marilandica*	NA	NA
false melic	*Schizachne purpurascens*	NA	NA
tufted bulrush	*Scirpus caespitosus*	NA	NA
marsh skullcap	*Scutellaria galericulata*	NA	NA
—	*Seligera campylopoda*	S2	G3G5
Canada buffalo-berry	*Shepherdia canadensis*	NA	NA
false Solomon's seal	*Smilacina racemosa*	NA	NA
star-flowered false Solomon's seal	*Smilacina stellata*	NA	NA
three-leaved false Solomon's seal	*Smilacina trifolia*	NA	NA
Canada goldenrod	*Solidago canadensis*	NA	NA
mountain goldenrod	*Solidago spathulata*	NA	NA
western mountain-ash	*Sorbus scopulina*	NA	NA
poor fen peat moss	*Sphagnum angustifolium*	NA	NA
rusty peat moss	*Sphagnum fuscum*	NA	NA
midway peat moss	*Sphagnum magellanicum*	NA	NA
Warnstorf's peat moss	*Sphagnum warnstofii*	NA	NA
common snowberry	*Symphoricarpus albus*	NA	NA
common dandelion	*Taraxacum officinale*	NA	NA
tall meadow rue	*Thalictrum dasycarpum*	NA	NA
veiny meadow rue	*Thalictrum venulosum*	NA	NA
wiry fern moss	*Thuidium abietinum*	NA	NA
golden fuzzy fen moss	*Tomenthypnum nitens*	NA	NA
—	*Tortella norvegica*	NA	NA

Plant Species List Concluded.

Common Name	Scientific Name	ANHIC Tracking List S Rank	G Rank
slender arrow-grass	*Triglochin palustis*	NA	NA
bog cranberry	*Vaccinium vitis-idaea*	NA	NA
low-bush cranberry	*Viburnum edule*	NA	NA
wild vetch	*Vicia americana*	NA	NA
western Canada violet	*Viola canadensis*	NA	NA
bog violet	*Viola nephrophylla*	NA	NA
kidney-leaved violet	*Viola renifolia*	NA	NA

Appendix III: List of Plant Communities (Includes full vegetation species and cover information)

This appendix provides a summary of the Vegetation Community Association (VCA) units identified in the 2001 vegetation survey. Column one identifies the VCA name, column two identifies the corresponding ecosite phase, column three contains the associated vegetation species with strata information for a given VCA, while columns four and five summarize the plant species and strata information, respectively. Percent cover is reported in the sixth and final column. The data have been sorted within each VCA by strata and species cover. Duplications in plant species occur where plant species data were collected from more than one plot. The vegetation strata is designated as follows:

Strata 1 = Main Canopy Tree
Strata 2 = Understorey Canopy Tree
Strata 3 = Epiphytes (no data collected for this strata)
Strata 4 = Tall Shrubs
Strata 5 = Low Shrubs
Strata 6 = Herbs
Strata 7 = Grasses
Strata 8 = Mosses
Strata 9 = Lichens

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Bearberry hairy wild rye grassland	a1	Arctuva_5	5	*Arctostaphylos uva-ursi*	65
	a1	Rosaaci_5	5	*Rosa acicularis*	3
	a1	Shepcan_5	5	*Shepherdia canadensis*	3
	a1	Poputre_5	5	*Populus tremuloides*	1
	a1	Amelain_5	5	*Amelanchier alnifolia*	0.5
	a1	Sympalb_5	5	*Symphoricarpos albus*	0.5
	a1	Astecil_6	6	*Aster ciliolatus*	3
	a1	Castmin_6	6	*Castilleja minuata*	1
	a1	Galibor_6	6	*Galium boreale*	1
	a1	Anemmul_6	6	*Anemone multifida*	0.5
	a1	Astrcan_6	6	*Astragalus cumulensis*	0.5
	a1	Camprot_6	6	*Campanula rotundifolia*	0.5
	a1	Fragves_6	6	*Fragaria vesca*	0.5
	a1	Hierumb_6	6	*Hieracium umbellatum*	0.5
	a1	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	a1	Oxytser_6	6	*Oxytropis sericea*	0.5
	a1	Solispa_6	6	*Solidago spathulata*	0.5
	a1	Elymnn_7	7	*Elymus innovatus*	7
	a1	Carespp_7	7	*Carex* spp.	0.5
	a1	Oryzasp_7	7	*Oryzopsis asperifolia*	0.5
	a1	Cerapur_8	8	*Ceratodon purpureus*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Pine bearberry hairy wild rye	c1	Pinucon_1	1	*Pinus contorta*	10
	c1	Picemar_2	2	*Picea mariana*	3
	c1	Poputre_4	4	*Populus tremuloides*	1
	c1	Arctuva_5	5	*Arctostaphylos uva-ursi*	55
	c1	Amelain_5	5	*Amelanchier alnifolia*	5
	c1	Poputre_5	5	*Populus tremuloides*	5
	c1	Rosaaci_5	5	*Rosa acicularis*	2
	c1	Shepcan_5	5	*Shepherdia canadensis*	0.5
	c1	Sympalb_5	5	*Symphoricarpos albus*	0.5
	c1	Astecil_6	6	*Aster ciliolatus*	5
	c1	Trihyb_6	6	*Triticum hybridum*	3
	c1	Achmil_6	6	*Achillea millefolium*	0.5
	c1	Agrosub_7	6	*Actaea rubra*	0.5
	c1	Antneg_6	6	*Antennaria neglecta*	0.5
	c1	Castmin_6	6	*Castilleja minuata*	0.5
	c1	Eriglа_6	6	*Erigeron glabellus*	0.5
	c1	Fragvir_6	6	*Fragaria virginiana*	0.5
	c1	Galibor_6	6	*Galium boreale*	0.5
	c1	Hierumb_6	6	*Hieracium umbellatum*	0.5
	c1	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	c1	Solispa_6	6	*Solidago spathulata*	0.5
	c1	Viciame_6	6	*Vicia americana*	0.5
	c1	Elymnn_7	7	*Elymus innovatus*	10
	c1	Bromcil_7	7	*Bromus ciliatus*	0.5
	c1	Calacan_7	7	*Calamagrostis canadensis*	0.5
	c1	Oryzasp_7	7	*Oryzopsis asperifolia*	0.5
	c1	Oryzpun_7	7	*Oryzopsis pungens*	0.5
	c1	Cerapur_8	8	*Ceratodon purpureus*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Aspen saskatoon–bearberry hairy wild rye	c2	Amelain_5	5	*Amelanchier alnifolia*	40
	c2	Arctuva_5	5	*Arctostaphylos uva-ursi*	30
	c2	Poputre_5	5	*Populus tremuloides*	5
	c2	Rosaaci_5	5	*Rosa acicularis*	3
	c2	Poputre_5	5	*Populus tremuloides*	2
	c2	Juncom_5	5	*Juniperus communis*	0.5
	c2	Popbal_5	5	*Populus balsamifera*	0.5
	c2	Prumvir_5	5	*Prunus virginiana*	0.5
	c2	Sympalb_5	5	*Symphoricarpos albus*	0.5
	c2	Sympalb_5	5	*Symphoricarpos albus*	0.5
	c2	Apocand_6	6	*Apocynum androsaemifolium*	10
	c2	Thaldas_6	6	*Thalictrum dasycarpum*	10
	c2	Viciame_6	6	*Vicia americana*	5
	c2	Astecil_6	6	*Aster ciliolatus*	2
	c2	Phacer_6	6	*Phacelia sericea*	2
	c2	Fragvir_6	6	*Fragaria virginiana*	1
	c2	Smilste_6	6	*Smilacina stellata*	1
	c2	Achmil_6	6	*Achillea millefolium*	0.5
	c2	Anemmul_6	6	*Anemone multifida*	0.5
	c2	Astecil_6	6	*Aster ciliolatus*	0.5
	c2	Astecon_6	6	*Aster conspicuus*	0.5
	c2	Camprot_6	6	*Campanula rotundifolia*	0.5
	c2	Castmin_6	6	*Castilleja minuata*	0.5
	c2	Fragvir_6	6	*Fragaria virginiana*	0.5
	c2	Galibor_6	6	*Galium boreale*	0.5
	c2	Galibor_6	6	*Galium boreale*	0.5
	c2	Hierumb_6	6	*Hieracium umbellatum*	0.5
	c2	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	c2	Lillspl	6	*Lilium* spp.	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	c2	Oxytspl_6	6	*Oxytropis splendens*	0.5
	c2	Solispa_6	6	*Solidago spathulata*	0.5
	c2	Elymsno_7	7	*Elymus innovatus*	3
	c2	Bromcil_7	7	*Bromus ciliatus*	1
	c2	Calacan_7	7	*Calamagrostis canadensis*	1
	c2	Agrotra_7	7	*Agropyron subsecundum*	0.5
	c2	Agrouni_7	7	*Agropyron subsecundum*	0.5
	c2	Carespp_7	7	*Carex* spp	0.5
	c2	Schipur_7	7	*Schizachne purpurascens*	0.5
	c2	Schipur_7	7	*Schizachne purpurascens*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Aspen–white spruce– pine bearberry hairy wild rye feather moss	c3	Poputre_1	1	*Populus tremuloides*	70
	c3	Picegla_1	1	*Picea glauca*	40
	c3	Poputre_1	1	*Populus tremuloides*	40
	c3	Poputre_1	1	*Populus tremuloides*	30
	c3	Pinucon_1	1	*Pinus contorta*	10
	c3	Popubal_1	1	*Populus balsamifera*	10
	c3	Pinucon_1	1	*Pinus contorta*	4
	c3	Poputre_1	1	*Populus tremuloides*	4
	c3	Picegla_1	1	*Picea glauca*	2
	c3	Picegla_2	2	*Picea glauca*	10
	c3	Picegla_2	2	*Picea glauca*	10
	c3	Popubal_2	2	*Populus balsamifera*	10
	c3	Picegla_2	2	*Picea glauca*	5
	c3	Poputre_2	2	*Populus tremuloides*	5
	c3	Picegla_2	2	*Picea glauca*	1
	c3	Amelain_4	4	*Amelanchier alnifolia*	3
	c3	Poputre_4	4	*Populus tremuloides*	2
	c3	Pinucon_4	4	*Pinus contorta*	1
	c3	Poputre_4	4	*Populus tremuloides*	1
	c3	Salibeb_4	4	*Salix bebbiana*	0.5
	c3	Arctuva_5	5	*Arctostaphylos uva-ursi*	70
	c3	Amelain_5	5	*Amelanchier alnifolia*	40
	c3	Arctuva_5	5	*Arctostaphylos uva-ursi*	20
	c3	Ledugro_5	5	*Ledum groenlandicum*	20
	c3	Shepcan_5	5	*Shepherdia canadensis*	20
	c3	Cornsto_5	5	*Cornus stolonifera*	15
	c3	Shepcan_5	5	*Shepherdia canadensis*	15
	c3	Betupap_5	5	*Betula papyrifera*	10
	c3	Poputre_5	5	*Populus tremuloides*	10
	c3	Vaccvit_5	5	*Vaccinium vitis-idaea*	*
	c3	Linnbor_5	5	*Linnaea borealis*	5
	c3	Rosaaci_5	5	*Rosa acicularis*	5
	c3	Rosaaci_5	5	*Rosa acicularis*	5
	c3	Shepcan_5	5	*Shepherdia canadensis*	5
	c3	Sympalb_5	5	*Symphoricarpus albus*	5
	c3	Vibuedu_5	5	*Viburnum edule*	5
	c3	Prunvir_5	5	*Prunus virginiana*	3
	c3	Rosaaci_5	5	*Rosa acicularis*	3
	c3	Rosaaci_5	5	*Rosa acicularis*	3
	c3	Rosaaci_5	5	*Rosa acicularis*	3
	c3	Rosaaci_5	5	*Rosa acicularis*	3
	c3	Salibeb_5	5	*Salix bebbiana*	3
	c3	Shepcan_5	5	*Shepherdia canadensis*	3
	c3	Linnbor_5	5	*Linnaea borealis*	2
	c3	Salispp_5	5	*Salix* spp	2
	c3	Vibuedu_5	5	*Viburnum edule*	2
	c3	Vibuedu_5	5	*Viburnum edule*	2
	c3	Amelain_5	5	*Amelanchier alnifolia*	1
	c3	Amelain_5	5	*Amelanchier alnifolia*	1
	c3	Juncom_5	5	*Juniperus communis*	1
	c3	Popubal_5	5	*Populus balsamifera*	0.5
	c3	Poputre_5	5	*Populus tremuloides*	0.5
	c3	Salispp_5	5	*Salix* spp	0.5
	c3	Shepcan_5	5	*Shepherdia canadensis*	0.5
	c3	Sympalb_5	5	*Symphoricarpus albus*	0.5
	c3	Vaccvit_5	5	*Vaccinium vitis-idaea*	0.5
	c3	Aralnud_6	6	*Aralia nudicaulis*	5
	c3	Astecil_6	6	*Aster ciliolatus*	5
	c3	Lathoch_6	6	*Lathyrus ochroleucus*	5
	c3	Thaldas_6	6	*Thalictrum dasycarpum*	5
	c3	Fragvir_6	6	*Fragaria virginiana*	3
	c3	Lathoch_6	6	*Lathyrus ochroleucus*	3
	c3	Violcan_6	6	*Viola canadensis*	3
	c3	Astecil_6	6	*Aster ciliolatus*	2
	c3	Astrcan_6	6	*Astragalus canadensis*	2
	c3	Fragves_6	6	*Fragaria vesca*	2
	c3	Geraspp_6	6	*Geranium* spp	2
	c3	Lathoch_6	6	*Lathyrus ochroleucus*	2
	c3	Mitnud_6	6	*Mitella nuda*	2
	c3	Petapal_6	6	*Petasites palmatus*	2
	c3	Astecon_6	6	*Aster conspicuus*	1
	c3	Astecon_6	6	*Aster conspicuus*	1

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	c3	Castmn_6	6	*Castilleja minuta*	1
	c3	Castmn_6	6	*Castilleja minuta*	1
	c3	Cornan_6	6	*Cornus canadensis*	1
	c3	Disptra_6	6	*Disporum trachycarpum*	1
	c3	Epilang_6	6	*Epilobium angustifolium*	1
	c3	Epilang_6	6	*Epilobium angustifolium*	1
	c3	Fragves_6	6	*Fragaria vesca*	1
	c3	Fragvir_6	6	*Fragaria virginiana*	1
	c3	Hedyalp_6	6	*Hedysarum alpinum*	1
	c3	Lathoch_6	6	*Lathyrus ochroleucus*	1
	c3	Maiacan_6	6	*Maianthemum canadense*	1
	c3	Mertpan_6	6	*Mertensia paniculata*	1
	c3	Rubupup_6	6	*Rubus pubescens*	1
	c3	Solispa_6	6	*Solidago spathulata*	1
	c3	Achmil_6	6	*Achillea millefolium*	0.5
	c3	Achmil_6	6	*Achillea millefolium*	0.5
	c3	Achmil_6	6	*Achillea millefolium*	0.5
	c3	Achmil_6	6	*Achillea millefolium*	0.5
	c3	Anemmul_6	6	*Anemone multifida*	0.5
	c3	Astecil_6	6	*Aster ciliolatus*	0.5
	c3	Astecil_6	6	*Aster ciliolatus*	0.5
	c3	Astepun_6	6	*Aster puniceus*	0.5
	c3	Astrcan_6	6	*Astragalus canadensis*	0.5
	c3	Camprot_6	6	*Campanula rotundifolia*	0.5
	c3	Camprot_6	6	*Campanula rotundifolia*	0.5
	c3	Castmn_6	6	*Castilleja minuta*	0.5
	c3	Cornan_6	6	*Cornus canadensis*	0.5
	c3	Disptra_6	6	*Disporum trachycarpum*	0.5
	c3	Equarv_6	6	*Equisetum arvense*	0.5
	c3	Fragvir_6	6	*Fragaria virginiana*	0.5
	c3	Galbor_6	6	*Galium boreale*	0.5
	c3	Galbor_6	6	*Galium boreale*	0.5
	c3	Galbor_6	6	*Galium boreale*	0.5
	c3	Galbor_6	6	*Galium boreale*	0.5
	c3	Galbor_6	6	*Galium boreale*	0.5
	c3	Gentama_6	6	*Gentianella amarella*	0.5
	c3	Geranc_6	6	*Geranium richardsonii*	0.5
	c3	Hierumb_6	6	*Hieracium umbellatum*	0.5
	c3	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	c3	Liliphi_6	6	*Lilium philadelphicum*	0.5
	c3	Maiacan_6	6	*Maianthemum canadense*	0.5
	c3	Mertpan_6	6	*Mertensia paniculata*	0.5
	c3	Rubupub_6	6	*Rubus pubescens*	0.5
	c3	Smilste_6	6	*Smilacina stellata*	0.5
	c3	Thalven_6	6	*Thalictrum venulosum*	0.5
	c3	Viciame_6	6	*Vicia americana*	0.5
	c3	Viciame_6	6	*Vicia americana*	0.5
	c3	Viciame_6	6	*Vicia americana*	0.5
	c3	Calacan_7	7	*Calamagrostis canadensis*	30
	c3	Elymunn_7	7	*Elymus innovatus*	30
	c3	Elymunn_7	7	*Elymus innovatus*	15
	c3	Elymunn_7	7	*Elymus innovatus*	15
	c3	Caresuc_7	7	*Carex sucata*	7
	c3	Elymunn_7	7	*Elymus innovatus*	5
	c3	Elymunn_7	7	*Elymus innovatus*	5
	c3	Elymunn_7	7	*Elymus innovatus*	2
	c3	Carespp_7	7	*Carex* spp.	1
	c3	Calacan_7	7	*Calamagrostis canadensis*	0.5
	c3	Calacan_7	7	*Calamagrostis canadensis*	0.5
	c3	Carespp_7	7	*Carex* spp.	0.5
	c3	Oryzasp_7	7	*Oryzopsis asperifolia*	0.5
	c3	Schipur_7	7	*Schizachne purpurascens*	0.5
	c3	Schipur_7	7	*Schizachne purpurascens*	0.5
	c3	Hylospl_8	8	*Hylocomium splendens*	70
	c3	Hylospl_8	8	*Hylocomium splendens*	35
	c3	Ptilcri_8	8	*Ptilium crista-castrensis*	30
	c3	Pleusch_8	8	*Pleurozium schreberi*	20
	c3	Thuiabi_8	8	*Thuidium abietinum*	2
	c3	Ceraspur_8	8	*Ceratodon purpureus*	0.5
	c3	Dicrpoi_8	8	*Dicranum polysetum*	0.5
	c3	Tomenit_8	8	*Tomentypnum nitens*	0.5
	c3	Peltaph_9	9	*Peltigera aphthosa*	1
	c3	Cladmit_9	9	*Cladina mitis*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Pine-black spruce Labrador tea feather moss (mesic)	d1	Picemar_1	1	*Picea mariana*	40
	d1	Pinucon_1	1	*Pinus contorta*	40
	d1	Pinucon_1	1	*Pinus contorta*	25
	d1	Laritar_1	1	*Larix laricina*	10
	d1	Picemar_2	2	*Picea mariana*	20
	d1	Shepcan_5	5	*Shepherdia canadensis*	30
	d1	Ledugro_5	5	*Ledum groenlandicum*	10
	d1	Lonmv_5	5	*Lonicera involucrata*	5
	d1	Rosaaci_5	5	*Rosa acicularis*	4

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	d1	Vaccvit_5	5	*Vaccinium vitis-idaea*	3
	d1	Linnbor_5	5	*Linnaea borealis*	1
	d1	Salispp_5	5	*Salix* spp	1
	d1	Linnbor_5	5	*Linnaea borealis*	0.5
	d1	Loninv_5	5	*Lonicera involucrata*	0.5
	d1	Rosaaci_5	5	*Rosa acicularis*	0.5
	d1	Vacccae_5	5	*Vaccinium caespitosum*	0.5
	d1	Petapal_6	6	*Petasites palmatus*	3
	d1	Epilang_6	6	*Epilobium angustifolium*	1
	d1	Arnicor_6	6	*Arnica cordifolia*	0.5
	d1	Cornean_6	6	*Cornus canadensis*	0.5
	d1	Epilang_6	6	*Epilobium angustifolium*	0.5
	d1	Galibor_6	6	*Galium boreale*	0.5
	d1	Galibor_6	6	*Galium boreale*	0.5
	d1	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	d1	Mniacan_6	6	*Mnium cuspidatum*	0.5
	d1	Elymmm_7	7	*Elymus innovatus*	0.5
	d1	Pleusch_8	8	*Pleurozium schreberi*	70
	d1	Ptilcri_8	8	*Ptilium crista-castrensis*	45
	d1	Hylospl_8	8	*Hylocomium splendens*	30
	d1	Pleusch_8	8	*Pleurozium schreberi*	10
	d1	Peltaph_9	9	*Peltigera aphthosa*	1

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Aspen prickly rose hairy wild rye	e2	Poputre_1	1	*Populus tremuloides*	75
	e2	Poputre_1	1	*Populus tremuloides*	50
	e2	Poputre_1	1	*Populus tremuloides*	45
	e2	Poputre_1	1	*Populus tremuloides*	35
	e2	Popubal_1	1	*Populus balsamifera*	5
	e2	Picegla_1	1	*Picea glauca*	1
	e2	Poputre_2	2	*Populus tremuloides*	20
	e2	Picegla_2	2	*Picea glauca*	0.5
	e2	Poputre_4	4	*Populus tremuloides*	10
	e2	Salispp_4	4	*Salix* spp	5
	e2	Popubal_4	4	*Populus balsamifera*	1
	e2	Popubal_4	4	*Populus balsamifera*	0.5
	e2	Rosaaci_5	5	*Rosa acicularis*	60
	e2	Cornsto_5	5	*Cornus stolonifera*	15
	e2	Amelain_5	5	*Amelanchier alnifolia*	10
	e2	Rosaaci_5	5	*Rosa acicularis*	5
	e2	Shepcan_5	5	*Shepherdia canadensis*	5
	e2	Sympalb_5	5	*Symphoricarpos albus*	5
	e2	Lonidio_5	5	*Lonicera dioica*	3
	e2	Loninv_5	5	*Lonicera involucrata*	3
	e2	Rosaaci_5	5	*Rosa acicularis*	3
	e2	Rosaaci_5	5	*Rosa acicularis*	3
	e2	Shepcan_5	5	*Shepherdia canadensis*	3
	e2	Sympalb_5	5	*Symphoricarpos albus*	3
	e2	Rubuida_5	5	*Rubus idaeus*	2
	e2	Rubuida_5	5	*Rubus idaeus*	2
	e2	Cornsto_5	5	*Cornus stolonifera*	1
	e2	Linnbor_5	5	*Linnaea borealis*	1
	e2	Shepcan_5	5	*Shepherdia canadensis*	1
	e2	Sympalb_5	5	*Symphoricarpos albus*	1
	e2	Linnbor_5	5	*Linnaea borealis*	0.5
	e2	Loninv_5	5	*Lonicera involucrata*	0.5
	e2	Poputre_5	5	*Populus tremuloides*	0.5
	e2	Epilang_6	6	*Epilobium angustifolium*	15
	e2	Astecil_6	6	*Aster ciliolatus*	7
	e2	Cornean_6	6	*Cornus canadensis*	7
	e2	Aralnud_6	6	*Aralia nudicaulis*	4
	e2	Aralnud_6	6	*Aralia nudicaulis*	4
	e2	Aralnud_6	6	*Aralia nudicaulis*	4
	e2	Astecil_6	6	*Aster ciliolatus*	5
	e2	Astecon_6	6	*Aster conspicuus*	5
	e2	Lathoch_6	6	*Lathyrus ochroleucus*	4
	e2	Rubupub_6	6	*Rubus pubescens*	5
	e2	Thalven_6	6	*Thalictrum venulosum*	5
	e2	Viciame_6	6	*Vicia americana*	5
	e2	Astecon_6	6	*Aster conspicuus*	3
	e2	Cornean_6	6	*Cornus canadensis*	3
	e2	Disptra_6	6	*Disporum trachycarpum*	3
	e2	Epilang_6	6	*Epilobium angustifolium*	3
	e2	Lathoch_6	6	*Lathyrus ochroleucus*	3
	e2	Mertpan_6	6	*Mertensia paniculata*	3
	e2	Petapal_6	6	*Petasites palmatus*	3
	e2	Rubupub_6	6	*Rubus pubescens*	3
	e2	Achmil_6	6	*Achillea millefolium*	2
	e2	Epilang_6	6	*Epilobium angustifolium*	2
	e2	Galibor_6	6	*Galium boreale*	2
	e2	Violcan_6	6	*Viola canadensis*	2
	e2	Anemcan_6	6	*Anemone canadensis*	1
	e2	Astecil_6	6	*Aster ciliolatus*	1
	e2	Astecon_6	6	*Aster conspicuus*	1

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	e2	Fragvir_6	6	*Fragaria virginiana*	1
	e2	Lathoch_6	6	*Lathyrus ochroleucus*	1
	e2	Pyrosa_6	6	*Pyrola asarifolia*	1
	e2	Vicame_6	6	*Vicia americana*	1
	e2	Achmil_6	6	*Achillea millefolium*	0.5
	e2	Amemcan_6	6	*Amelanchier canadensis*	0.5
	e2	Astcil_6	6	*Aster ciliolatus*	0.5
	e2	Astepun_6	6	*Aster puniceus*	0.5
	e2	Castmin_6	6	*Castilleja miniata*	0.5
	e2	Dispra_6	6	*Disporum trachycarpum*	0.5
	e2	Dispra_6	6	*Disporum trachycarpum*	0.5
	e2	Fragvir_6	6	*Fragaria virginiana*	0.5
	e2	Fragvir_6	6	*Fragaria virginiana*	0.5
	e2	Galbor_6	6	*Galium boreale*	0.5
	e2	Galbor_6	6	*Galium boreale*	0.5
	e2	Gentama_6	6	*Gentianella amarella*	0.5
	e2	Gentama_6	6	*Gentianella amarella*	0.5
	e2	Habchyp_6	6	*Habenaria hyperborea*	0.5
	e2	Hieumb_6	6	*Hieracium umbellatum*	0.5
	e2	Masacan_6	6	*Maianthemum canadense*	0.5
	e2	Masacan_6	6	*Maianthemum canadense*	0.5
	e2	Orthsec_6	6	*Orthilia secunda*	0.5
	e2	Petapal_6	6	*Petasites palmatus*	0.5
	e2	Sanmar_6	6	*Sanicula marilandica*	0.5
	e2	Smilrac_6	6	*Smilacina racemosa*	0.5
	e2	Smilrac_6	6	*Smilacina racemosa*	0.5
	e2	Smilste_6	6	*Smilacina stellata*	0.5
	e2	Taraoff_6	6	*Taraxacum officinale*	0.5
	e2	Thalven_6	6	*Thalictrum venulosum*	0.5
	e2	Trifhyb_6	6	*Trifolium hybridum*	0.5
	e2	Vicame_6	6	*Vicia americana*	0.5
	e2	Violcan_6	6	*Viola canadensis*	0.5
	e2	Elymnn_7	7	*Elymus innovatus*	20
	e2	Elymnn_7	7	*Elymus innovatus*	10
	e2	Calacan_7	7	*Calamagrostis canadensis*	5
	e2	Elymnn_7	7	*Elymus innovatus*	5
	e2	Oryzasp_6	7	*Oryzopsis asperifolia*	0.5
	e2	Oryzasp_7	7	*Oryzopsis asperifolia*	0.5
	e2	Schpur_7	7	*Schizachne purpurascens*	0.5
	e2	Schpur_7	7	*Schizachne purpurascens*	0.5
	e2	Pleusch_8	8	*Pleurozium schreberi*	1
	e2	Bracvel_8	8	*Brachythecium velutinum*	0.5
	e2	Plagcus_8	8	*Plagiomnium cuspidatum*	0.5
	e2	Pleusch_8	8	*Pleurozium schreberi*	0.5
	e2	Pleusch_8	8	*Pleurozium schreberi*	0.5
	e2	Thuabi_8	8	*Thuidium abietinum*	0.5
	e2	Thuabi_8	8	*Thuidium abietinum*	0.5
	e2	Thuabi_8	8	*Thuidium abietinum*	0.5
	e2	Peltcan_9	9	*Peltigera canina*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Aspen–white spruce–pine green alder–Canada buffalo-berry hairy wild rye feather moss	e3	Poputre_1	1	*Populus tremuloides*	60
	e3	Poputre_1	1	*Populus tremuloides*	60
	e3	Poputre_1	1	*Populus tremuloides*	60
	e3	Poputre_1	1	*Populus tremuloides*	50
	e3	Poputre_1	1	*Populus tremuloides*	50
	e3	Poputre_1	1	*Populus tremuloides*	35
	e3	Poputre_1	1	*Populus tremuloides*	30
	e3	Poputre_1	1	*Populus tremuloides*	20
	e3	Picegla_1	1	*Picea glauca*	10
	e3	Picegla_1	1	*Picea glauca*	10
	e3	Pinucon_1	1	*Pinus contorta*	10
	e3	Picegla_1	1	*Picea glauca*	5
	e3	Pinucon_1	1	*Pinus contorta*	5
	e3	Pinucon_1	1	*Pinus contorta*	5
	e3	Popbal_1	1	*Populus balsamifera*	5
	e3	Pinucon_1	1	*Pinus contorta*	3
	e3	Pinucon_1	1	*Pinus contorta*	1
	e3	Picegla_2	2	*Picea glauca*	25
	e3	Picegla_2	2	*Picea glauca*	10
	e3	Picegla_2	2	*Picea glauca*	10
	e3	Picegla_2	2	*Picea glauca*	5
	e3	Picegla_2	2	*Picea glauca*	5
	e3	Picegla_2	2	*Picea glauca*	3
	e3	Popbal_2	2	*Populus balsamifera*	2
	e3	Alnucri_4	4	*Alnus crispa*	30
	e3	Alnucri_4	4	*Alnus crispa*	30
	e3	Alnucri_4	4	*Alnus crispa*	5
	e3	Salpla_4	4	*Salix planifolia*	5
	e3	Picegla_4	4	*Picea glauca*	3
	e3	Poputre_4	4	*Populus tremuloides*	3
	e3	Popbal_4	4	*Populus balsamifera*	2
	e3	Poputre_4	4	*Populus tremuloides*	2

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	e3	Popubal_4	4	*Populus balsamifera*	1
	e3	Salipla_4	4	*Salix planifolia*	1
	e3	Shepcan_5	5	*Shepherdia canadensis*	40
	e3	Vibuedu_5	5	*Viburnum edule*	20
	e3	Sympalb_5	5	*Symphoricarpos albus*	15
	e3	Alnucri_5	5	*Alnus crispa_*	10
	e3	Alnucri_5	5	*Alnus crispa_*	10
	e3	Arctuva_5	5	*Arctostaphylos uva-ursi*	10
	e3	Rosaaci_5	5	*Rosa acicularis*	10
	e3	Salispp_5	5	*Salix spp*	10
	e3	Ledugro_5	5	*Ledum groenlandicum*	*
	e3	Shepcan_5	5	*Shepherdia canadensis*	*
	e3	Vibuedu_5	5	*Viburnum edule*	*
	e3	Vibuedu_5	5	*Viburnum edule*	*
	e3	Ledugro_5	5	*Ledum groenlandicum*	5
	e3	Lonuinv_5	5	*Lonicera involucrata*	5
	e3	Lonuinv_5	5	*Lonicera involucrata*	5
	e3	Lonuinv_5	5	*Lonicera involucrata*	5
	e3	Picegla_5	5	*Picea glauca*	5
	e3	Rosaaci_5	5	*Rosa acicularis*	5
	e3	Shepcan_5	5	*Shepherdia canadensis*	5
	e3	Vacccae_5	5	*Vaccinium caespitosum*	5
	e3	Salimyr_5	5	*Salix myrtillifolia*	3
	e3	Vibuedu_5	5	*Viburnum edule*	3
	e3	Lnnbor_5	5	*Linnaea borealis*	2
	e3	Lonuinv_5	5	*Lonicera involucrata*	2
	e3	Rosaaci_5	5	*Rosa acicularis*	2
	e3	Rosaaci_5	5	*Rosa acicularis*	2
	e3	Rosaaci_5	5	*Rosa acicularis*	2
	e3	Salispp_5	5	*Salix spp*	2
	e3	Vaccvit_5	5	*Vaccinium vitis-idaea*	2
	e3	Amelaln_5	5	*Amelanchier alnifolia*	1
	e3	Ledugro_5	5	*Ledum groenlandicum*	1
	e3	Lnnbor_5	5	*Linnaea borealis*	1
	e3	Lnnbor_5	5	*Linnaea borealis*	1
	e3	Lonuinv_5	5	*Lonicera involucrata*	1
	e3	Rosaaci_5	5	*Rosa acicularis*	1
	e3	Rosaaci_5	5	*Rosa acicularis*	1
	e3	Salispp_5	5	*Salix spp*	1
	e3	Vibuedu_5	5	*Viburnum edule*	1
	e3	Amelaln_5	5	*Amelanchier alnifolia*	0.5
	e3	Lnnbor_5	5	*Linnaea borealis*	0.5
	e3	Lnnbor_5	5	*Linnaea borealis*	0.5
	e3	Londio_5	5	*Lonicera dioca*	0.5
	e3	Popubal_5	5	*Populus balsamifera*	0.5
	e3	Rosaaci_5	5	*Rosa acicularis*	0.5
	e3	Shepcan_5	5	*Shepherdia canadensis*	0.5
	e3	Vacccae_5	5	*Vaccinium caespitosum*	0.5
	e3	Vaccvit_5	5	*Vaccinium vitis-idaea*	0.5
	e3	Vaccvit_5	5	*Vaccinium vitis-idaea*	0.5
	e3	Vibuedu_5	5	*Viburnum edule*	0.5
	e3	Corncan_6	6	*Cornus canadensis*	20
	e3	Lathoch_6	6	*Lathyrus ochroleucus*	20
	e3	Corncan_6	6	*Cornus canadensis*	15
	e3	Astecil_6	6	*Aster ciliolatus*	10
	e3	Astecon_6	6	*Aster conspicuus*	10
	e3	Corncan_6	6	*Cornus canadensis*	10
	e3	Corncan_6	6	*Cornus canadensis*	10
	e3	Rubupub_6	6	*Rubus pubescens*	10
	e3	Astecil_6	6	*Aster ciliolatus*	5
	e3	Astecil_6	6	*Aster ciliolatus*	5
	e3	Corncan_6	6	*Cornus canadensis*	5
	e3	Corncan_6	6	*Cornus canadensis*	5
	e3	Epslang_6	6	*Epilobium angustifolium*	5
	e3	Epslang_6	6	*Epilobium angustifolium*	5
	e3	Fragvir_6	6	*Fragaria virginiana*	5
	e3	Lathoch_6	6	*Lathyrus ochroleucus*	5
	e3	Mertpan_6	6	*Mertensia paniculata*	5
	e3	Mitenud_6	6	*Mitella nuda*	5
	e3	Rubupub_6	6	*Rubus pubescens*	5
	e3	Rubupub_6	6	*Rubus pubescens*	5
	e3	Lathoch_6	6	*Lathyrus ochroleucus*	3
	e3	Mertpan_6	6	*Mertensia paniculata*	3
	e3	Mertpan_6	6	*Mertensia paniculata*	3
	e3	Mertpan_6	6	*Mertensia paniculata*	3
	e3	Astecon_6	6	*Aster conspicuus*	2
	e3	Corncan_6	6	*Cornus canadensis*	2
	e3	Fragvir_6	6	*Fragaria virginiana*	2
	e3	Petapal_6	6	*Petasites palmatus*	2
	e3	Vicuamc_6	6	*Vicia americana*	2
	e3	Arnicor_6	6	*Arnica cordifolia*	1
	e3	Astecil_6	6	*Aster ciliolatus*	1
	e3	Fragvir_6	6	*Fragaria virginiana*	1
	e3	Fragvir_6	6	*Fragaria virginiana*	1
	e3	Fragvir_6	6	*Fragaria virginiana*	1

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	e3	Lathoch_6	6	*Lathyrus ochroleucus*	1
	e3	Mauacan_6	6	*Maianthemum canadense*	1
	e3	Mertpan_6	6	*Mertensia paniculata*	1
	e3	Mitenud_6	6	*Mitella nuda*	1
	e3	Mitenud_6	6	*Mitella nuda*	1
	e3	Petapal_6	6	*Petasites palmatus*	1
	e3	Petapal_6	6	*Petasites palmatus*	1
	e3	Pyroasa_6	6	*Pyrola asarifolia*	1
	e3	Rubupub_6	6	*Rubus pubescens*	1
	e3	Rubupub_6	6	*Rubus pubescens*	1
	e3	Achumi_6	6	*Achillea millefolium*	0.5
	e3	Achumi_6	6	*Achillea millefolium*	0.5
	e3	Actarub_6	6	*Actaea rubra*	0.5
	e3	Aralnud_6	6	*Aralia nudicaulis*	0.5
	e3	Aralnud_6	6	*Aralia nudicaulis*	0.5
	e3	Arnicor_6	6	*Arnica cordifolia*	0.5
	e3	Arnicor_6	6	*Arnica cordifolia*	0.5
	e3	Arnicor_6	6	*Arnica cordifolia*	0.5
	e3	Astecil_6	6	*Aster ciliolatus*	0.5
	e3	Astecon_6	6	*Aster conspicuus*	0.5
	e3	Camprot_6	6	*Campanula rotundifolia*	0.5
	e3	Castmin_6	6	*Castilleja miniata*	0.5
	e3	Castmin_6	6	*Castilleja miniata*	0.5
	e3	Delpgla_6	6	*Delphinium glaucum*	0.5
	e3	Epilang_6	6	*Epilobium angustifolium*	0.5
	e3	Epilang_6	6	*Epilobium angustifolium*	0.5
	e3	Epilang_6	6	*Epilobium angustifolium*	0.5
	e3	Epilang_6	6	*Epilobium angustifolium*	0.5
	e3	Epilang_6	6	*Epilobium angustifolium*	0.5
	e3	Equiarv_6	6	*Equisetum arvense*	0.5
	e3	Equipra_6	6	*Equisetum pratense*	0.5
	e3	Equisyl_6	6	*Equisetum sylvaticum*	0.5
	e3	Fragvir_6	6	*Fragaria virginiana*	0.5
	e3	Fragvir_6	6	*Fragaria virginiana*	0.5
	e3	Galibor_6	6	*Galium boreale*	0.5
	e3	Galibor_6	6	*Galium boreale*	0.5
	e3	Galibor_6	6	*Galium boreale*	0.5
	e3	Galibor_6	6	*Galium boreale*	0.5
	e3	Geraric_6	6	*Geranium richardsonii*	0.5
	e3	Goodrep_6	6	*Goodyera repens*	0.5
	e3	Habcobt_6	6	*Habenaria obtusata*	0.5
	e3	Habevir_6	6	*Habenaria viridis*	0.5
	e3	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	e3	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	e3	Mauacan_6	6	*Maianthemum canadense*	0.5
	e3	Mauacan_6	6	*Maianthemum canadense*	0.5
	e3	Mauacan_6	6	*Maianthemum canadense*	0.5
	e3	Mauacan_6	6	*Maianthemum canadense*	0.5
	e3	Mitenud_6	6	*Mitella nuda*	0.5
	e3	Osmodep_6	6	*Osmorhiza depauperata*	0.5
	e3	Petapal_6	6	*Petasites palmatus*	0.5
	e3	Petapal_6	6	*Petasites palmatus*	0.5
	e3	Pyroasa_6	6	*Pyrola asarifolia*	0.5
	e3	Pyroasa_6	6	*Pyrola asarifolia*	0.5
	e3	Pyroasa_6	6	*Pyrola asarifolia*	0.5
	e3	Pyroasa_6	6	*Pyrola asarifolia*	0.5
	e3	Rubupub_6	6	*Rubus pubescens*	0.5
	e3	Vicuame_6	6	*Vicia americana*	0.5
	e3	Violnep_6	6	*Viola nephrophylla*	0.5
	e3	Violren_6	6	*Viola renifolia*	0.5
	e3	Violren_6	6	*Viola renifolia*	0.5
	e3	Elymunn_7	7	*Elymus innovatus*	70
	e3	Calacan_7	7	*Calamagrostis canadensis*	20
	e3	Elymunn_7	7	*Elymus innovatus*	15
	e3	Elymunn_7	7	*Elymus innovatus*	10
	e3	Calacan_7	7	*Calamagrostis canadensis*	5
	e3	Elymunn_7	7	*Elymus innovatus*	3
	e3	Elymunn_7	7	*Elymus innovatus*	3
	e3	Calacan_7	7	*Calamagrostis canadensis*	1
	e3	Calacan_7	7	*Calamagrostis canadensis*	0.5
	e3	Elymunn_7	7	*Elymus innovatus*	0.5
	e3	Elymunn_7	7	*Elymus innovatus*	0.5
	e3	Schpur_7	7	*Schizachne purpurascens*	0.5
	e3	Hylospl_8	8	*Hylocomium splendens*	60
	e3	Hylospl_8	8	*Hylocomium splendens*	50
	e3	Ptilcri_8	8	*Ptilium crista-castrensis*	40
	e3	Pleusch_8	8	*Pleurozium schreberi*	30
	e3	Hylospl_8	8	*Hylocomium splendens*	10
	e3	Pleusch_8	8	*Pleurozium schreberi*	10
	e3	Plagcus_8	8	*Plagiomnium cuspidatum*	5
	e3	Pleusch_8	8	*Pleurozium schreberi*	3
	e3	Eurhpul_8	8	*Eurhynchium pulchellum*	2
	e3	Plagell_8	8	*Plagiomnium ellipticum*	2
	e3	Pleusch_8	8	*Pleurozium schreberi*	2
	e3	Ptilcri_8	8	*Ptilium crista-castrensis*	2

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	e3	Ptilcri_8	8	*Ptilium crista-castrensis*	2
	e3	Dicrpol_8	8	*Dicranum polysetum*	1
	e3	Barblyc_8	8	*Barbilophozia lycopodioides*	0.5
	e3	Drepadu_8	8	*Drepanocladus aduncus*	0.5
	e3	Hylospl_8	8	*Hylocomium splendens*	0.5
	e3	Hylsopl_8	8	*Hylocomium splendens*	0.5
	e3	Plagcus_8	8	*Plagiomnium cuspidatum*	0.5
	e3	Pleusch_8	8	*Pleurozium schreberi*	0.5
	e3	Pleusch_8	8	*Pleurozium schreberi*	0.5
	e3	Polycom_8	8	*Polytrichum commune*	0.5
	e3	Polypil_8	8	*Polytrichum piliferum*	0.5
	e3	Ptilcri_8	8	*Ptilium crista-castrensis*	0.5
	e3	Ptilcri_8	8	*Ptilium crista-castrensis*	0.5
	e3	Ptilcri_8	8	*Ptilium crista-castrensis*	0.5
	e3	Peltaph_9	9	*Peltigera aphthosa*	1
	e3	Peltcan_9	9	*Peltigera canina*	0.5
	e3	Peltcan_9	9	*Peltigera canina*	0.5
	e3	Peltcan_9	9	*Peltigera canina*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
White spruce (balsam fir) feather moss	e4	Picegla_1	1	*Picea glauca*	50
	e4	Picegla_1	1	*Picea glauca*	40
	e4	Picegla_1	1	*Picea glauca*	35
	e4	Picegla_1	1	*Picea glauca*	20
	e4	Abicbal_1	1	*Abies balsamea*	15
	e4	Pinucon_1	1	*Pinus contorta*	15
	e4	Pinucon_1	1	*Pinus contorta*	10
	e4	Popubal_1	1	*Populus balsamifera*	10
	e4	Popubal_1	1	*Populus balsamifera*	0.5
	e4	Picegla_2	2	*Picea glauca*	30
	e4	Picemar_2	2	*Picea mariana*	20
	e4	Picegla_2	2	*Picea glauca*	5
	e4	Abicbal_3	3	*Abies balsamea*	20
	e4	Abicbal_4	4	*Abies balsamea*	15
	e4	Almucri_4	4	*Alnus crispa*	10
	e4	Ledugro_5	5	*Ledum groenlandicum*	5
	e4	Rosaaci_5	5	*Rosa acicularis*	5
	e4	Vaccvac_5	5	*Vaccinium vacopitosum*	3
	e4	Vibuedu_5	5	*Viburnum edule*	3
	e4	Lonuinv_5	5	*Lonicera involucrata*	2
	e4	Rosaaci_5	5	*Rosa acicularis*	2
	e4	Linnbor_5	5	*Linnaea borealis*	1
	e4	Rosaaci_5	5	*Rosa acicularis*	1
	e4	Shepcan_5	5	*Shepherdia canadensis*	1
	e4	Vaccvit_5	5	*Vaccinium vitis-idaea*	1
	e4	Vibuedu_5	5	*Viburnum edule*	1
	e4	Vibuedu_5	5	*Viburnum edule*	1
	e4	Linnbor_5	5	*Linnaea borealis*	0.5
	e4	Linnbor_5	5	*Linnaea borealis*	0.5
	e4	Linnbor_5	5	*Linnaea borealis*	0.5
	e4	Lonuinv_5	5	*Lonicera involucrata*	0.5
	e4	Poputre_5	5	*Populus tremuloides*	0.5
	e4	Ribeoxy_5	5	*Ribes oxyacanthoides*	0.5
	e4	Rosaaci_5	5	*Rosa acicularis*	0.5
	e4	Vaccvit_5	5	*Vaccinium vitis-idaea*	0.5
	e4	Vibuedu_5	5	*Viburnum edule*	0.5
	e4	Cornean_6	6	*Cornus canadensis*	5
	e4	Cornean_6	6	*Cornus canadensis*	5
	e4	Petapal_6	6	*Petasites palmatus*	2
	e4	Astrame_6	6	*Astragalus americanus*	1
	e4	Cornean_6	6	*Cornus canadensis*	1
	e4	Cornean_6	6	*Cornus canadensis*	1
	e4	Mitenud_6	6	*Mitella nuda*	1
	e4	Rubupub_6	6	*Rubus pubescens*	1
	e4	Aralnud_6	6	*Aralia nudicaulis*	0.5
	e4	Arnicor_6	6	*Arnica cordifolia*	0.5
	e4	Arnicor_6	6	*Arnica cordifolia*	0.5
	e4	Arnicor_6	6	*Arnica cordifolia*	0.5
	e4	Astecil_6	6	*Aster ciliolatus*	0.5
	e4	Epilang_6	6	*Epilobium angustifolium*	0.5
	e4	Epilang_6	6	*Epilobium angustifolium*	0.5
	e4	Equsarv_6	6	*Equisetum arvense*	0.5
	e4	Galbor_6	6	*Galium boreale*	0.5
	e4	Galbor_6	6	*Galium boreale*	0.5
	e4	Listcor_6	6	*Listera cordata*	0.5
	e4	Maiecan_6	6	*Maianthemum canadense*	0.5
	e4	Mertpan_6	6	*Mertensia paniculata*	0.5
	e4	Mertpan_6	6	*Mertensia paniculata*	0.5
	e4	Mertpan_6	6	*Mertensia paniculata*	0.5
	e4	Mertpan_6	6	*Mertensia paniculata*	0.5
	e4	Mitenud_6	6	*Mitella nuda*	0.5
	e4	Mitenud_6	6	*Mitella nuda*	0.5
	e4	Orthsec_6	6	*Orthilia secunda*	0.5
	e4	Orthsec_6	6	*Orthilia secunda*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	c4	Petapal_6	6	*Petasites palmatus*	0.5
	c4	Petapal_6	6	*Petasites palmatus*	0.5
	c4	Pyroasa_6	6	*Pyrola asarifolia*	0.5
	c4	Elymnn_7	7	*Elymus innovatus*	2
	c4	Elymnn_7	7	*Elymus innovatus*	0.5
	c4	Elymnn_7	7	*Elymus innovatus*	0.5
	c4	Ptilcri_8	8	*Ptilium crista-castrensis*	95
	c4	Hylospl_8	8	*Hylocomium splendens*	85
	c4	Pleusch_8	8	*Pleurozium schreberi*	75
	c4	Ptilcri_8	8	*Ptilium crista-castrensis*	35
	c4	Ptilcri_8	8	*Ptilium crista-castrensis*	20
	c4	Hylospl_8	8	*Hylocomium splendens*	10
	c4	Ptilcri_8	8	*Ptilium crista-castrensis*	10
	c4	Hylospl_8	8	*Hylocomium splendens*	5
	c4	Hylospl_8	8	*Hylocomium splendens*	5
	c4	Dicrund_8	8	*Dicranum undulatum*	1
	c4	Dicrpol_8	8	*Dicranum polysetum*	0.5
	c4	Dicrsco_8	8	*Dicranum scoparium*	0.5
	c4	Pleusch_8	8	*Pleurozium schreberi*	0.5
	c4	Tomenit_8	8	*Tomenthypnum nitens*	0.5
	c4	Peltaph_9	9	*Peltigera aphthosa*	0.5
	c4	Peltcan_9	9	*Peltigera canina*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Aspen–balsam poplar cow parsnip marsh reed grass	f2	Popbal_1	1	*Populus balsamifera*	30
	f2	Poputre_1	1	*Populus tremuloides*	10
	f2	Picegla_1	1	*Picea glauca*	5
	f2	Pinucon_1	1	*Pinus contorta*	5
	f2	Picegla_2	2	*Picea glauca*	10
	f2	Rubunda_5	5	*Rubus idaeus*	3
	f2	Lonimv_5	5	*Lonicera involucrata*	1
	f2	Heralan_6	6	*Heracleum lanatum*	20
	f2	Delpgla_6	6	*Delphinium glaucum*	5
	f2	Equspra_6	6	*Equisetum pratense*	1
	f2	Mertpan_6	6	*Mertensia paniculata*	1
	f2	Achmil_6	6	*Achillea millefolium*	0.5
	f2	Astecil_6	6	*Aster ciliolatus*	0.5
	f2	Geranc_6	6	*Geranium richardsonii*	0.5
	f2	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	f2	Petapal_6	6	*Petasites palmatus*	0.5
	f2	Smilste_6	6	*Smilacina stellata*	0.5
	f2	Viciame_6	6	*Vicia americana*	0.5
	f2	Violcan_6	6	*Viola canadensis*	0.5
	f2	Calacan_7	7	*Calamagrostis canadensis*	90

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
White spruce–balsam fir fern feather moss	f4	Picegla_1	1	*Picea glauca*	40
	f4	Abiebal_2	2	*Abies balsamea*	20
	f4	Viburedu_5	5	*Viburnum edule*	10
	f4	Sorbsco_5	5	*Sorbus scopulina*	3
	f4	Dryoaus_6	6	*Dryopteris austriaca*	10
	f4	Dispsra_6	6	*Disporum trachycarpum*	5
	f4	Heralan_6	6	*Heracleum lanatum*	5
	f4	Rubupub_6	6	*Rubus pubescens*	5
	f4	Arnicor_6	6	*Arnica cordifolia*	0.5
	f4	Hylospl_8	8	*Hylocomium splendens*	60

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Willow sedge meadow	g1	Salarb_4	4	*Salix arbusculoides*	15
	g1	Salarb_5	5	*Salix arbusculoides*	5
	g1	Salgla_5	5	*Salix glauca*	5
	g1	Astepun_6	6	*Aster puniceus*	1
	g1	Scutgal_6	6	*Scutellaria galericulata*	1
	g1	Carcaqu_7	7	*Carex aquatilis*	85
	g1	Calacan_7	7	*Calamagrostis canadensis*	5
	g1	Poapal_7	7	*Poa palustris*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Current–wild red raspberry horsetail meadow	g2	Salpla_4	4	*Salix planifolia*	3
	g2	Rubunda_5	5	*Rubus idaeus*	4
	g2	Ribehud_5	5	*Ribes hudsonianum*	5
	g2	Ribeoxy_5	5	*Ribes oxyacanthoides*	3
	g2	Lonimv_5	5	*Lonicera involucrata*	2
	g2	Rosaaci_5	5	*Rosa acicularis*	0.5
	g2	Sympalb_5	5	*Symphoricarpos albus*	0.5
	g2	Equsarv_6	6	*Equisetum arvense*	40
	g2	Equspra_6	6	*Equisetum pratense*	10
	g2	Heralan_6	6	*Heracleum lanatum*	7
	g2	Astepun_6	6	*Aster puniceus*	5
	g2	Epilang_6	6	*Epilobium angustifolium*	3
	g2	Solcan_6	6	*Solidago canadensis*	2

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	g2	Astecil_6	6	*Aster ciliolatus*	1
	g2	Delpgla_6	6	*Delphinium glaucum*	1
	g2	Veramc_6	6	*Vicia americana*	1
	g2	Fragvir_6	6	*Fragaria virginiana*	0.5
	g2	Geumale_6	6	*Geum aleppicum*	0.5
	g2	Geummac_6	6	*Geum macrophyllum*	0.5
	g2	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	g2	Mertpan_6	6	*Mertensia paniculata*	0.5
	g2	Taraoff_6	6	*Taraxacum officinale*	0.5
	g2	Bromcil_"	"	*Bromus ciliatus*	15
	g2	Agrotra_7	"	*Agrostis subvecundum*	5
	g2	Carcaqu_"	"	*Carex aquatilis*	4
	g2	Calacan_"	"	*Calamagrostis canadensis*	1
	g2	Poapra_"	"	*Poa pratensis*	1
	g2	Schpur_"	"	*Schizachne purpurascens*	0.5
	g2	Drepadu_8	8	*Drepanocladus aduncus*	10

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Pine- black spruce Labrador tea feather moss (subhygric)	h1	Picemar_1	1	*Picea mariana*	45
	h1	Alnuten_2	2	*Alnus tenuifolia*	5
	h1	Lonumv_5	5	*Lonicera involucrata*	4
	h1	Vibucdu_5	5	*Viburnum edule*	4
	h1	Ledugro_5	5	*Ledum groenlandicum*	3
	h1	Rosaaci_5	5	*Rosa acicularis*	1
	h1	Cornsan_6	6	*Cornus canadensis*	10
	h1	Equarv_6	6	*Equisetum arvense*	7
	h1	Astecil_6	6	*Aster ciliolatus*	0.5
	h1	Equsci_6	6	*Equisetum scirpoides*	0.5
	h1	Galbor_6	6	*Galium boreale*	0.5
	h1	Petapal_6	6	*Petasites palmatus*	0.5
	h1	Carespp_7	7	*Carex spp.*	3
	h1	Hylospl_8	8	*Hylocomium splendens*	40
	h1	Ptilcri_8	8	*Ptilium crista-castrensis*	40
	h1	Pleusch_8	8	*Pleurozium schreberi*	10

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
White spruce willow horsetail feather moss	s3	Picegla_1	1	*Picea glauca*	50
	s3	Picegla_1	1	*Picea glauca*	45
	s3	Picegla_1	1	*Picea glauca*	30
	s3	Picegla_1	1	*Picea glauca*	15
	s3	Picemar_2	2	*Picea mariana*	10
	s3	Picemar_2	2	*Picea mariana*	10
	s3	Lardar_2	2	*Larix laricina*	0.5
	s3	Salbeb_4	4	*Salix bebbiana*	15
	s3	Popbal_4	4	*Populus balsamifera*	0.5
	s3	Ribcame_4	4	*Ribes americanum*	0.5
	s3	Ribelac_4	4	*Ribes lacustre*	0.5
	s3	Lonumv_5	5	*Lonicera involucrata*	15
	s3	Lonumv_5	5	*Lonicera involucrata*	10
	s3	Rosaaci_5	5	*Rosa acicularis*	10
	s3	Salluc_5	5	*Salix lucida*	10
	s3	Vibucdu_5	5	*Viburnum edule*	10
	s3	Ribcoxy_5	5	*Ribes oxyacanthoides*	3
	s3	Rosaaci_5	5	*Rosa acicularis*	3
	s3	Rosaaci_5	5	*Rosa acicularis*	3
	s3	Salluc_5	5	*Salix lucida*	3
	s3	Salmac_5	5	*Salix maccalliana*	3
	s3	Sympalb_5	5	*Symphoricarpos albus*	3
	s3	Lonumv_5	5	*Lonicera involucrata*	2
	s3	Salmac_5	5	*Salix maccalliana*	2
	s3	Ledugro_5	5	*Ledum groenlandicum*	1
	s3	Saldru_5	5	*Salix drummondiana*	1
	s3	Shepcan_5	5	*Shepherdia canadensis*	1
	s3	Vibucdu_5	5	*Viburnum edule*	1
	s3	Lonbor_5	5	*Lonicera borealis*	0.5
	s3	Lonbor_5	5	*Lonicera borealis*	0.5
	s3	Lonbor_5	5	*Lonicera borealis*	0.5
	s3	Lonbor_5	5	*Lonicera borealis*	0.5
	s3	Lonvil_5	5	*Lonicera villosa*	0.5
	s3	Popbal_5	5	*Populus balsamifera*	0.5
	s3	Ribelac_5	5	*Ribes lacustre*	0.5
	s3	Vaccvit_5	5	*Vaccinium vitis-idaea*	0.5
	s3	Equarv_6	6	*Equisetum arvense*	40
	s3	Equarv_6	6	*Equisetum arvense*	30
	s3	Equarv_6	6	*Equisetum arvense*	25
	s3	Cornsan_6	6	*Cornus canadensis*	10
	s3	Equarv_6	6	*Equisetum arvense*	10
	s3	Astecil_6	6	*Aster ciliolatus*	5
	s3	Cornsan_6	6	*Cornus canadensis*	5
	s3	Epilang_6	6	*Epilobium angustifolium*	5
	s3	Equsyl_6	6	*Equisetum sylvaticum*	4
	s3	Fragvir_6	6	*Fragaria virginiana*	4
	s3	Mitnud_6	6	*Mitella nuda*	4

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	t3	Cornca n_6	6	*Cornus canadensis*	3
	t3	Mertpan_6	6	*Mertensia paniculata*	3
	t3	Equisci_6	6	*Equisetum scirpoides*	2
	t3	Mertpan_6	6	*Mertensia paniculata*	2
	t3	Mitenud_6	6	*Mitella nuda*	2
	t3	Astepun_6	6	*Aster puniceus*	1
	t3	Cornca n_6	6	*Cornus canadensis*	1
	t3	Delpgla_6	6	*Delphinium glaucum*	1
	t3	Equisci_6	6	*Equisetum scirpoides*	1
	t3	Geraba c_6	6	*Geranium bicknellii*	1
	t3	Mitenud_6	6	*Mitella nuda*	1
	t3	Petapal_6	6	*Petasites palmatus*	1
	t3	Petapal_6	6	*Petasites palmatus*	1
	t3	Rubupub_5	6	*Rubus pubescens*	1
	t3	Rubupub_6	6	*Rubus pubescens*	1
	t3	Rubupub_6	6	*Rubus pubescens*	1
	t3	Achimil_6	6	*Achillea millefolium*	0.5
	t3	Achimil_6	6	*Achillea millefolium*	0.5
	t3	Achimil_6	6	*Achillea millefolium*	0.5
	t3	Actarub_6	6	*Actaea rubra*	0.5
	t3	Aralnud_6	6	*Aralia nudicaulis*	0.5
	t3	Astecil_6	6	*Aster ciliolatus*	0.5
	t3	Astecil_6	6	*Aster ciliolatus*	0.5
	t3	Astrame_6	6	*Astragalus americanus*	0.5
	t3	Castmin_6	6	*Castilleja miniata*	0.5
	t3	Disptra_6	6	*Disporum trachycarpum*	0.5
	t3	Epilang_6	6	*Epilobium angustifolium*	0.5
	t3	Equisci_6	6	*Equisetum scirpoides*	0.5
	t3	Fragvir_6	6	*Fragaria virginiana*	0.5
	t3	Fragvir_6	6	*Fragaria virginiana*	0.5
	t3	Galbor_6	6	*Galium boreale*	0.5
	t3	Galbor_6	6	*Galium boreale*	0.5
	t3	Galtri_6	6	*Galium triflorum*	0.5
	t3	Geumriv_6	6	*Geum rivale*	0.5
	t3	Geumriv_6	6	*Geum rivale*	0.5
	t3	Heralan_6	6	*Heracleum lanatum*	0.5
	t3	Hierumb_6	6	*Hieracium umbellatum*	0.5
	t3	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	t3	Maiacan_6	6	*Maianthemum canadense*	0.5
	t3	Maiacan_6	6	*Maianthemum canadense*	0.5
	t3	Mertpan_6	6	*Mertensia paniculata*	0.5
	t3	Mertpan_6	6	*Mertensia paniculata*	0.5
	t3	Mitenud_6	6	*Mitella nuda*	0.5
	t3	Moncuni_6	6	*Monenses uniflora*	0.5
	t3	Moncuni_6	6	*Monenses uniflora*	0.5
	t3	Petapal_6	6	*Petasites palmatus*	0.5
	t3	Pyroasa_6	6	*Pyrola asarifolia*	0.5
	t3	Rubupub_6	6	*Rubus pubescens*	0.5
	t3	Thaldas_6	6	*Thalictrum dasycarpum*	0.5
	t3	Vicame_6	6	*Vicia americana*	0.5
	t3	Schpur_7	7	*Schizachne purpurascens*	15
	t3	Carebeb_7	7	*Carex bebbii*	5
	t3	Elymmn_7	7	*Elymus innovatus*	5
	t3	Bromcil_7	7	*Bromus ciliatus*	3
	t3	Calacan_7	7	*Calamagrostis canadensis*	2
	t3	Agrosub_7	7	*Agropyron subvestitum*	0.5
	t3	Agrotra_7	7	*Agropyron subvestitum*	0.5
	t3	Calacan_7	7	*Calamagrostis canadensis*	0.5
	t3	Calacan_7	7	*Calamagrostis canadensis*	0.5
	t3	Careaqu_7	7	*Carex aquatilis*	0.5
	t3	Caredew_7	7	*Carex deweyana*	0.5
	t3	Carespp_7	7	*Carex* spp	0.5
	t3	Poapal_7	7	*Poa palustris*	0.5
	t3	Trigpal_7	7	*Trigochin palustris*	0.5
	t3	Hylospl_8	8	*Hylocomium splendens*	70
	t3	Ptilcri_8	8	*Ptilium crista-castrensis*	70
	t3	Hylospl_8	8	*Hylocomium splendens*	40
	t3	Hylospl_8	8	*Hylocomium splendens*	30
	t3	Ptilcri_8	8	*Ptilium crista-castrensis*	30
	t3	Hylospl_8	8	*Hylocomium splendens*	20
	t3	Pleusch_8	8	*Pleurozium schreberi*	15
	t3	Pleusch_8	8	*Pleurozium schreberi*	10
	t3	Ptilcri_8	8	*Ptilium crista-castrensis*	10
	t3	Thuabi_8	8	*Thuidium abietinum*	5
	t3	Aulapal_8	8	*Aulacomnium palustre*	0.5
	t3	Cerapur_8	8	*Ceratodon purpureus*	0.5
	t3	Drepunc_8	8	*Drepanocladus uncinatus*	0.5
	t3	Fissgra_8	8	*Fissidens grandifrons*	0.5
	t3	Hypsau_8	8	*Hypnum vaucheri*	0.5
	t3	Marcpol_8	8	*Marchantia polymorpha*	0.5
	t3	Plagcil_8	8	*Plagiomnium ciliare*	0.5
	t3	Plagcus_8	8	*Plagiomnium cuspidatum*	0.5
	t3	Selcam_8	8	*Selaginella campylopoda*	0.5
	t3	Sphamag_8	8	*Sphagnum magellanicum*	0.5
	t3	Peltaph_9	9	*Peltigera aphthosa*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	i3	Peltcan_9	9	*Peltigera canina*	0.5
	i3	Peltcan_9	9	*Peltigera canina*	0.5
	i3	Peltcan_9	9	*Peltigera canina*	0.5
	i3	Peltcan_9	9	*Peltigera canina*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Black spruce-white spruce horsetail feather moss	j1	Picemar_1	1	*Picea mariana*	40
	j1	Picemar_1	1	*Picea mariana*	20
	j1	Larlar_1	1	*Larix laricina*	5
	j1	Picegla_1	1	*Picea glauca*	5
	j1	Picegla_1	1	*Picea glauca*	1
	j1	Picemar_4	4	*Picea mariana*	1
	j1	Rosaaci_4	4	*Rosa acicularis*	0.5
	j1	Betugla_5	5	*Betula glandulosa*	5
	j1	Potefru_5	5	*Potentilla fruticosa*	5
	j1	Rosaaci_5	5	*Rosa acicularis*	5
	j1	Salgla_5	5	*Salix glauca*	5
	j1	Salmyr_5	5	*Salix myrtillifolia*	5
	j1	Salpla_5	5	*Salix planifolia*	5
	j1	Rubuida_5	5	*Rubus idaeus*	2
	j1	Amelaln_5	5	*Amelanchier alnifolia*	1
	j1	Ledugro_5	5	*Ledum groenlandicum*	1
	j1	Lonuav_5	5	*Lonicera involucrata*	1
	j1	Ribeoxy_5	5	*Ribes oxyacanthoides*	1
	j1	Sympalb_5	5	*Symphoricarpus albus*	1
	j1	Vaccvit_5	5	*Vaccinium vitis-idaea*	1
	j1	Linnbor_5	5	*Linnaea borealis*	0.5
	j1	Lonuav_5	5	*Lonicera involucrata*	0.5
	j1	Picemar_5	5	*Picea mariana*	0.5
	j1	Shepcan_5	5	*Shepherdia canadensis*	0.5
	j1	Equarv_6	6	*Equisetum arvense*	40
	j1	Astrame_6	6	*Astragalus americanus*	5
	j1	Epilang_6	6	*Epilobium angustifolium*	5
	j1	Equpra_6	6	*Equisetum pratense*	5
	j1	Equsyl_6	6	*Equisetum sylvaticum*	5
	j1	Astecil_6	6	*Aster ciliolatus*	2
	j1	Delpgla_6	6	*Delphinium glaucum*	2
	j1	Astecil_6	6	*Aster ciliolatus*	1
	j1	Cornan_6	6	*Cornus canadensis*	1
	j1	Equarv_6	6	*Equisetum arvense*	1
	j1	Mertpan_6	6	*Mertensia paniculata*	1
	j1	Mitenud_6	6	*Mitella nuda*	1
	j1	Mitenud_6	6	*Mitella nuda*	1
	j1	Petapal_6	6	*Petasites palmatus*	1
	j1	Petapal_6	6	*Petasites palmatus*	1
	j1	Achmil_6	6	*Achillea millefolium*	0.5
	j1	Achmil_6	6	*Achillea millefolium*	0.5
	j1	Antrneg_6	6	*Antennaria neglecta*	0.5
	j1	Astepun_6	6	*Aster puniceus*	0.5
	j1	Camprot_6	6	*Campanula rotundifolia*	0.5
	j1	Castmin_6	6	*Castilleja minuta*	0.5
	j1	Corncan_6	6	*Cornus canadensis*	0.5
	j1	Fragvir_6	6	*Fragaria virginiana*	0.5
	j1	Galbor_6	6	*Galium boreale*	0.5
	j1	Galbor_6	6	*Galium boreale*	0.5
	j1	Hierumb_6	6	*Hieracium umbellatum*	0.5
	j1	Lathoch_6	6	*Lathyrus ochroleucus*	0.5
	j1	Mertpan_6	6	*Mertensia paniculata*	0.5
	j1	Smilste_6	6	*Smilacina stellata*	0.5
	j1	Solcan_6	6	*Solidago canadensis*	0.5
	j1	Violren_6	6	*Viola renifolia*	0.5
	j1	Elymun_7	7	*Elymus innovatus*	10
	j1	Carcaqu_7	7	*Carex aquatilis*	5
	j1	Schpur_7	7	*Schizachne purpurascens*	5
	j1	Calcan_7	7	*Calamagrostis canadensis*	2
	j1	Cardis_7	7	*Carex disperma*	1
	j1	Schpur_7	7	*Schizachne purpurascens*	0.5
	j1	Hylospl_8	8	*Hylocomium splendens*	55
	j1	Hylospl_8	8	*Hylocomium splendens*	40
	j1	Pleusch_8	8	*Pleurozium schreberi*	35
	j1	Thuiabi_8	8	*Thuidium abietinum*	15
	j1	Pleusch_8	8	*Pleurozium schreberi*	5
	j1	Ptilcri_8	8	*Ptilium crista-castrensis*	5
	j1	Cladmit_9	9	*Cladina mitis*	1
	j1	Cladcor_9	9	*Cladonia cornuta*	0.5
	j1	Cladmul_9	9	*Cladonia multiformis*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Black spruce-willow-Labrador tea feather moss-peat moss	k1	Picemar_1	1	*Picea mariana*	10
	k1	Salmac_5	5	*Salix maccalliana*	15
	k1	Ledugro_5	5	*Ledum groenlandicum*	10
	k1	Salmyr_5	5	*Salix myrtillifolia*	3
	k1	Vaccvit_5	5	*Vaccinium vitis-idaea*	1

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	k1	Abiebal_5	5	*Abies balsamea*	0.5
	k1	Larlar_5	5	*Larix laricina*	0.5
	k1	Equarv_6	6	*Equisetum arvense*	20
	k1	Equsyl_6	6	*Equisetum sylvaticum*	5
	k1	Equsci_6	6	*Equisetum scirpoides*	0.5
	k1	Smitri_6	6	*Smilacina trifolia*	0.5
	k1	Carcaqu_7	7	*Carex aquatilis*	0.5
	k1	Hylospl_8	8	*Hylocomium splendens*	40
	k1	Sphaang_8	8	*Sphagnum angustifolium*	30
	k1	Pleusch_8	8	*Pleurozium schreberi*	20
	k1	Ptilcri_8	8	*Ptilium crista-castrensis*	5
	k1	Tomcnt_8	8	*Tomenthypnum nitens*	0.5
	k1	Peltaph_9	9	*Peltigera aphthosa*	1

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Larch-black spruce Labrador tea-willow sedge peat moss	l1	Larlar_1	1	*Larix laricina*	30
	l1	Larlar_1	1	*Larix laricina*	5
	l1	Picmar_1	1	*Picea mariana*	5
	l1	Picmar_1	1	*Picea mariana*	5
	l1	Picmar_1	1	*Picea mariana*	1
	l1	Picmar_3	3	*Picea mariana*	15
	l1	Larlar_3	3	*Larix laricina*	10
	l1	Picmar_4	4	*Picea mariana*	10
	l1	Larlar_4	4	*Larix laricina*	5
	l1	Picmar_4	4	*Picea mariana*	5
	l1	Ledugro_5	5	*Ledum groenlandicum*	20
	l1	Salilut_5	5	*Salix lutea*	20
	l1	Betugla_5	5	*Betula glandulosa*	15
	l1	Ledugro_5	5	*Ledum groenlandicum*	10
	l1	Picmar_5	5	*Picea mariana*	10
	l1	Larlar_5	5	*Larix laricina*	7
	l1	Betugla_5	5	*Betula glandulosa*	5
	l1	Salmyr_5	5	*Salix myrtillifolia*	5
	l1	Saliped_5	5	*Salix pedicellaris*	5
	l1	Betugla_5	5	*Betula glandulosa*	3
	l1	Vaccvit_5	5	*Vaccinium vitis-idaea*	3
	l1	Salmyr_5	5	*Salix myrtillifolia*	2
	l1	Saliped_5	5	*Salix pedicellaris*	2
	l1	Oxycmc_5	5	*Oxycoccus microcarpus*	1
	l1	Oxycmc_5	5	*Oxycoccus microcarpus*	1
	l1	Equsci_6	6	*Equisetum scirpoides*	1
	l1	Smitri_6	6	*Smilacina trifolia*	1
	l1	Smitri_6	6	*Smilacina trifolia*	1
	l1	Astebor_6	6	*Aster borealis*	0.5
	l1	Equflu_6	6	*Equisetum fluviatile*	0.5
	l1	Equsci_6	6	*Equisetum scirpoides*	0.5
	l1	Geocliv_6	6	*Geocaulon lividum*	0.5
	l1	Micnud_6	6	*Mitella nuda*	0.5
	l1	Orthsec_6	6	*Orthilia secunda*	0.5
	l1	Pedpar_6	6	*Pedicularis parviflora*	0.5
	l1	Potepal_6	6	*Potentilla palustris*	0.5
	l1	Rubpub_6	6	*Rubus pubescens*	0.5
	l1	Smitri_6	6	*Smilacina trifolia*	0.5
	l1	Carcaqu_7	7	*Carex aquatilis*	30
	l1	Carcaqu_7	7	*Carex aquatilis*	15
	l1	Calcan_7	7	*Calamagrostis canadensis*	10
	l1	Carcaqu_7	7	*Carex aquatilis*	10
	l1	Cardis_7	7	*Carex disperma*	0.5
	l1	Cardis_7	7	*Carex disperma*	0.5
	l1	Sphaang_8	8	*Sphagnum angustifolium*	60
	l1	Sphamag_8	8	*Sphagnum magellanicum*	45
	l1	Sphamag_8	8	*Sphagnum magellanicum*	20
	l1	Sphwar_8	8	*Sphagnum warnstorfii*	20
	l1	Sphfus_8	8	*Sphagnum fuscum*	15
	l1	Pleusch_8	8	*Pleurozium schreberi*	10
	l1	Tomcnt_8	8	*Tomenthypnum nitens*	10
	l1	Aulpal_8	8	*Aulacomnium palustre*	5
	l1	Hylospl_8	8	*Hylocomium splendens*	5
	l1	Polstr_8	8	*Polytrichum strictum*	5
	l1	Polstr_8	8	*Polytrichum strictum*	5
	l1	Sphaang_8	8	*Sphagnum angustifolium*	5
	l1	Sphaang_8	8	*Sphagnum angustifolium*	5
	l1	Tomcnt_8	8	*Tomenthypnum nitens*	5
	l1	Aulpal_8	8	*Aulacomnium palustre*	2
	l1	Callric_8	8	*Calliergeron richardsonii*	1
	l1	Campste_8	8	*Campylium stellatum*	0.5
	l1	Ceramur_8	8	*Ceratodon purpureus*	0.5
	l1	Dicsco_8	8	*Dicranum scoparium*	0.5
	l1	Drepflu_8	8	*Drepanocladus fluitans*	0.5
	l1	Fissgra_8	8	*Fissidens grandifrons*	0.5
	l1	Lepinven_8	8	*Lepidozia ventricosa*	0.5
	l1	Marcpol_9	8	*Marchantia polymorpha*	0.5
	l1	Plagpor_8	8	*Plagiochila porelloides*	0.5
	l1	Platrep_8	8	*Platygyrium repens*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	11	Ptilcil_8	8	*Ptilidium ciliare*	0.5
	11	Toment_8	8	*Tomentypnum nitens*	0.5
	11	Tortnov_8	8	*Tortella norvegica*	0.5
	11	Peltcan_9	9	*Peltigera canina*	2
	11	Cladmi_9	9	*Cladina mitis*	0.5
	11	Cladran_9	9	*Cladina rangiferina*	0.5
	11	Cladcen_9	9	*Cladonia cenotea*	0.5
	11	Cladchl_9	9	*Cladonia chlorophaea*	0.5
	11	Cladcor_9	9	*Cladonia cornuta*	0.5
	11	Cladcri_9	9	*Cladonia crispata*	0.5
	11	Cladgra_9	9	*Cladonia gracilis*	0.5
	11	Cladsul_9	9	*Cladonia sulphurina*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Larch/black spruce/ dwarf birch- willow- sedge golden moss	ml	Larlar_1	1	*Larix laricina*	40
	ml	Picmar_1	1	*Picea mariana*	20
	ml	Larlar_1	1	*Larix laricina*	5
	ml	Picmar_1	1	*Picea mariana*	2
	ml	Larlar_2	2	*Larix laricina*	1
	ml	Larlar_4	4	*Larix laricina*	5
	ml	Picmar_4	4	*Picea mariana*	5
	ml	Larlar_4	4	*Larix laricina*	3
	ml	Betugla_5	5	*Betula glandulosa*	20
	ml	Larlar_5	5	*Larix laricina*	15
	ml	Betugla_5	5	*Betula glandulosa*	10
	ml	Ledugro_5	5	*Ledum groenlandicum*	10
	ml	Betupum_5	5	*Betula pumila*	7
	ml	Salmac_5	5	*Salix maccalliana*	5
	ml	Salpla_5	5	*Salix planifolia*	5
	ml	Salpla_5	5	*Salix planifolia*	3
	ml	Ledugro_5	5	*Ledum groenlandicum*	2
	ml	Oxycmc_5	5	*Oxycoccos microcarpus*	2
	ml	Salcan_5	5	*Salix candida*	2
	ml	Salmyr_5	5	*Salix myrtillifolia*	2
	ml	Salser_5	5	*Salix serissima*	2
	ml	Vacevt_5	5	*Vaccinium vitis-idaea*	2
	ml	Andrpol_5	5	*Andromeda polifolia*	0.5
	ml	Larlar_5	5	*Larix laricina*	0.5
	ml	Loninv_5	5	*Lonicera involucrata*	0.5
	ml	Oxycmc_5	5	*Oxycoccos microcarpos*	0.5
	ml	Picmar_5	5	*Picea mariana*	0.5
	ml	Picmar_5	5	*Picea mariana*	0.5
	ml	Ribcoxy_5	5	*Ribes oxyacanthoides*	0.5
	ml	Salslut_5	5	*Salix lutea*	0.5
	ml	Salmyr_5	5	*Salix myrtillifolia*	0.5
	ml	Salmyr_5	5	*Salix myrtillifolia*	2
	ml	Geumriv_6	6	*Geum rivale*	1
	ml	Geummac_6	6	*Geum macrophyllum*	1
	ml	Mitenud_6	6	*Mitella nuda*	1
	ml	Smiltri_6	6	*Smilacina trifolia*	1
	ml	Smiltri_6	6	*Smilacina trifolia*	1
	ml	Achmil_6	6	*Achillea millefolium*	0.5
	ml	Astcil_6	6	*Aster ciliolatus*	0.5
	ml	Equarv_6	6	*Equisetum arvense*	0.5
	ml	Equsci_6	6	*Equisetum scirpoides*	0.5
	ml	Equsci_6	6	*Equisetum scirpoides*	0.5
	ml	Parpal_6	6	*Parnassia palustris*	0.5
	ml	Pedgro_6	6	*Pedicularis groenlandica*	0.5
	ml	Rubuaca_6	6	*Rubus acaulis*	0.5
	ml	Rubuaca_6	6	*Rubus acaulis*	0.5
	ml	Smiltri_6	6	*Smilacina trifolia*	0.5
	ml	Vicame_6	6	*Vicia americana*	0.5
	ml	Carcaqu_7	7	*Carex aquatilis*	20
	ml	Carcaqu_7	7	*Carex aquatilis*	10
	ml	Calacan_7	7	*Calamagrostis canadensis*	5
	ml	Carcaqu_7	7	*Carex aquatilis*	5
	ml	Cargyn_7	7	*Carex gynocrates*	2
	ml	Bromci_7	7	*Bromus ciliatus*	1
	ml	Caredis_7	7	*Carex disperma*	0.5
	ml	Erioang_7	7	*Eriophorum angustifolium*	0.5
	ml	Scircae_7	7	*Scirpus caespitosus*	0.5
	ml	Tomenat_8	8	*Tomentypnum nitens*	50
	ml	Tomenat_8	8	*Tomentypnum nitens*	40
	ml	Sphawar_8	8	*Sphagnum warnstofii*	30
	ml	Dreprev_8	8	*Drepanocladus revolvens*	25
	ml	Climden_8	8	*Climacium dendroides*	15
	ml	Sphaang_8	8	*Sphagnum angustifolium*	15
	ml	Sphameg_8	8	*Sphagnum magellanicum*	15
	ml	Callric_8	8	*Calliergon richardsonii*	10
	ml	Heliobla_8	8	*Helodium blandowii*	10
	ml	Sphawar_8	8	*Sphagnum warnstofii*	10
	ml	Callgig_8	8	*Calliergon giganteum*	-
	ml	Drepadu_8	8	*Drepanocladus aduncus*	-
	ml	Dreprev_8	8	*Drepanocladus revolvens*	5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
	m1	Polystr_8	8	*Polytrichum strictum*	4
	m1	Aulapal_8	8	*Aulacomnium palustre*	2
	m1	Plagcus_8	8	*Plagiomnium cuspidatum*	2
	m1	Sphamag_8	8	*Sphagnum magellanicum*	2
	m1	Aulapal_8	8	*Aulacomnium palustre*	1
	m1	Campste_8	8	*Campylium stellatum*	1
	m1	Peltcan_9	9	*Peltigera canina*	15
	m1	Peltcan_9	9	*Peltigera canina*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Willow/sedge/Richardson's water moss	m2	Salipla_5	5	*Salix planifolia*	20
	m2	Salped_5	5	*Salix pedicellaris*	4
	m2	Mitenud_6	6	*Mitella nuda*	0.5
	m2	Ranugme_6	6	*Ranunculus gmelinii*	0.5
	m2	Careaqu_7	7	*Carex aquatilis*	40
	m2	Careutr_7	7	*Carex utriculata*	35
	m2	Carecan_7	7	*Carex canescens*	5
	m2	Junebal_7	7	*Juncus balticus*	0.5
	m2	Callric_8	8	*Calliergeron richardsonii*	30
	m2	Marcpol_8	8	*Marchantia polymorpha*	0.5

Vegetation Community Association	Ecosite Phase	Species Code	Strata	Species	Percent Cover
Sedge golden moss	m3	Larilar_4	4	*Larix laricina*	1
	m3	Betugla_5	5	*Betula glandulosa*	10
	m3	Salped_5	5	*Salix pedicellaris*	5
	m3	Salped_5	5	*Salix pedicellaris*	3
	m3	Salipla_5	5	*Salix planifolia*	1
	m3	Salipla_5	5	*Salix planifolia*	1
	m3	Elaecomm_5	5	*Elaeagnus commutata*	0.5
	m3	Picemar_5	5	*Picea mariana*	0.5
	m3	Salipla_5	5	*Salix planifolia*	0.5
	m3	Potepal_6	6	*Potentilla palustris*	0.5
	m3	Potetri_6	6	*Potentilla tridentata*	0.5
	m3	Rubuaca_6	6	*Rubus acaulis*	0.5
	m3	Rumeocc_6	6	*Rumex occidentalis*	0.5
	m3	Carespp_7	7	*Carex* spp.	65
	m3	Careaqu_7	7	*Carex aquatilis*	60
	m3	Caresar_7	7	*Carex sartwellii*	60
	m3	Calacan_7	7	*Calamagrostis canadensis*	10
	m3	Carebeb_7	7	*Carex bebbii*	10
	m3	Careutr_7	7	*Carex utriculata*	10
	m3	Carespp_7	7	*Carex* spp.	5
	m3	Descaes_7	7	*Deschampsia caespitosa*	0.5
	m3	Glycgra_7	7	*Glyceria grandis*	0.5
	m3	Tomenni_8	8	*Tomenthypnum nitens*	45
	m3	Callric_8	8	*Calliergeron richardsonii*	15
	m3	Campste_8	8	*Campylium stellatum*	10
	m3	Callgig_8	8	*Calliergeron giganteum*	5
	m3	Tomenni_8	8	*Tomenthypnum nitens*	5
	m3	Aulapal_8	8	*Aulacomnium palustre*	1
	m3	Plagcus_8	8	*Plagiomnium cuspidatum*	0.5

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